H. M. REISWIG

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Mc Gill

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9 AUG 1976
Monday
(485)

Up at 6AM - Dive Carter + Chris H from Coral Avon & Nurse Jolly - in @ 10AM; discov 3 small yellow Varongia tubs for water sampling, Photog Color, + collecting Rubble for Pond + Agelas rope for Carter.

Z = 45'

C
B
A

Census Data:

Spg	Vel	Osc	L	D	Oxygen Tube #	POC Bag #
47 A	7.5 c/s	27×27	25	6.5	1+3	1 + 3
48 B	8.5 c/s	25×25	25	6.0	2	2 + 4
49 C	5.8 c/s	25×25	27	6.5	4	none
Amb	—	—	—	—	5+6	5

Oxygen 21.5° C Lab Sat Calibrat 7.2 ppm mg/L

Tube #	Smpl	O_2 ppm
5	Amb 1	6.69
1	Spg A 47A	6.45
2	Spg B 48	6.36
3	Spg A 47B	6.38
4	Spg C 49	6.28 LOW
6	Amb 2	6.71

$\bar{X}_A$ 6.70

$\bar{X}_{(A)}$ 6.3675

Δ_{O_2} 0.3325

= 4.9627%

POC

#	Smpl	Vol	A	POC	Δ POC	%
1	Spg A 47	4.1 l	.052	36.8 mg/m³		
2	Spg B 48	4.0	.058	42.1		
3	Spg A 47	4.08	.055	39.1		
4	Spg B 48	4.02	.054	39.0		
5	Amb	3.97	.076	55.6		
6	BLK	-	—	—		

$\bar{X}_{sp}$

Photos Kodak 64 20 Exp Chris took most
I set camera up w 'B' speed as many are N G. F-8 flash
Color 2310-2323 Then set to 1/30 sec F.4 for Amb s 10-15 feet
then more flash at 1/30 F-8 at 4 feet.

76-8-9 Invertebrate collection Agelas "ramosa" gathered for Carter OK.

Retin to lab to get filters - data + Clean up
Collected shrimp for Agelas
Photo Color of Logan's plates - Blue + Black Backgrounds
f4 at 1/60 w Amb Light.
Evening: worked on spg collection of Bellairs - rough list given Later here + in Folder

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10 Aug 76 Tuesday: up 6:30 Breakfast + head
Work on Bellairs spg collection again + finished it
Finin left on trip; Plan dive to Photog Chris' area
but raining; By 11:30 am change of plans to
carry out a vertical set of POC determinations.
(487) 1 pm Chris + I out to Kirks mid small wooden
w new tanks Dive 1:20 - 1:45 pm:

Oxygens: 3 groups of tubes Version on Channel #1
Calib 21°C Lab = 7.3 ppm set

Tube	Sample	ppm
5	Amb 1	6.58
1	Spg A	6.27
2	Spg B	6.22
3	Spg C	6.21
4	Spg D	6.26
6	Amb 2	6.58

$\bar{X}_A$ = 6.58
$\bar{X}_B$ 6.24
ΔO_2 0.34

- 5.22

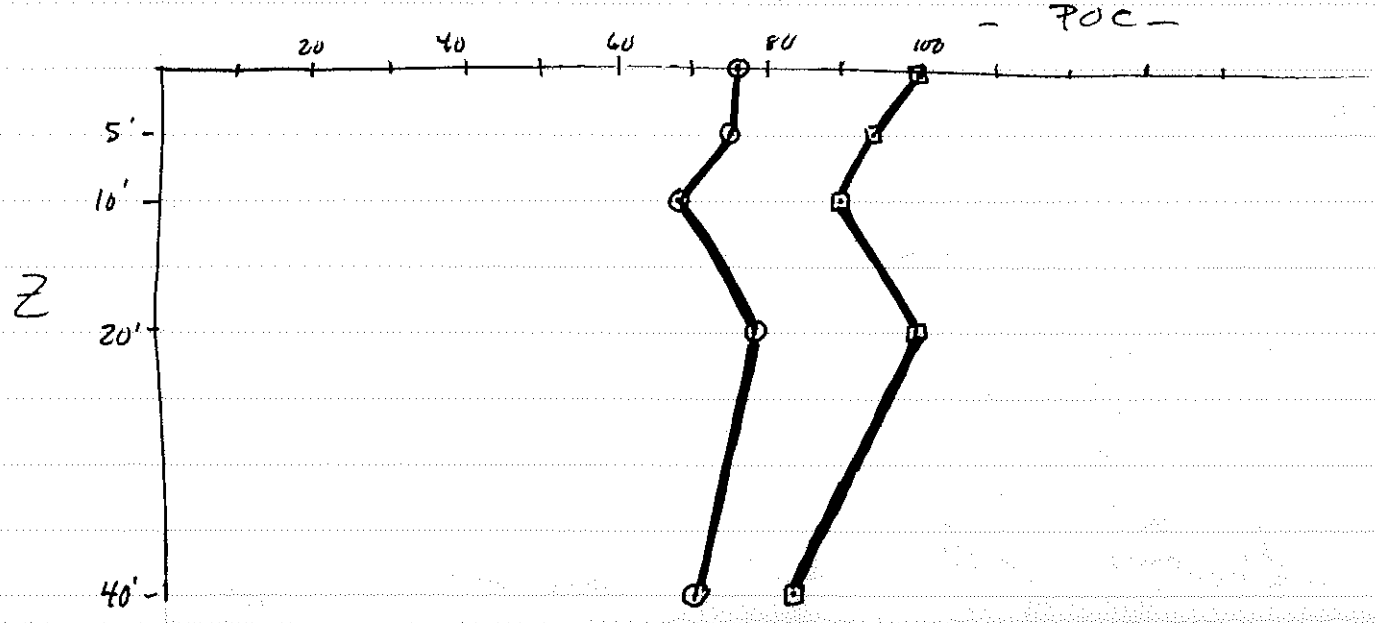
Good Set! NO Velocities
Dive +

Corgo Collect : 3 pco of one grgo - washed + dried + identify.

POC sets 2 collect sets : Nozzle Bags = N } at 40', 20', 10', 5', 0' (0.1)
No Nozzle Bags NN }

N bags sieved as normal agg bags 100 μm screen
NN bags not sieved - pass through 1/4" nozzle out. - All filtered

	Bag	V	A	POC
N	1-40'	4.05	.097	69.5
N	2-20'	4.02	.109	78.7
N	3-10'	4.05	.095	68.1
N	4-5'	4.06	.105	75.1
N	5-0'	4.03	.106	76.4
BLK	6 BLK$_1$		.0	OK.
	7 BLK$_2$	—	.002	
NN	1-40'	4.11	.117	82.6
NN	2-20'	4.11	.142	100.3
NN	3-10'	4.11	.127	89.7
NN	4-5'	4.11	.133	93.9
NN	5-0'	4.11	.141	99.6



11 AUG 76
Wed
(198)

Up at 6 AM – BKfst ; to water by 7 AM
Chris H & hole to 'nest' of Yellow Tubes.
In ~ 7:15 AM + on target but spgs almost all closed off or not active ! (30) ~~35~~ oscula seen w no currents - walls closed or diaphragm ; Pop is DOWN – are these all 'in Phase' ; Dive anyway found a few active ~~Z=40'~~ collected data + samples :
Dive with Part used Tanks (No #) but small Wooden !

Census Data

Specs	Bag	Tube	Vel	Osc	L	D
~~50~~ A	1	1	5 c/s	40x45	28	85
51 B	2	2	7.2 c/s	32	~~21~~	75
52 C	3	3	9.5 c/s	30	24½	65
53 D	4	4	7.5 c/s	28	17	60
Amb	5	5+6	–	–	–	–

Oxygen

22°C calib 7.1 ppm

Tube	Sapl	ppm
5	Amb 1	6.22
1 (50)	Spg A	~~5.87~~
2 (51)	Spg B	5.70
3 (52)	Spg C	5.77
4 (53)	Spg D	5.74
6	Amb 2	6.11

$\bar{X}_3$

$\bar{X}_a$ 6.165
$\bar{X}_s$ 5.77
0.395 – 6.41%

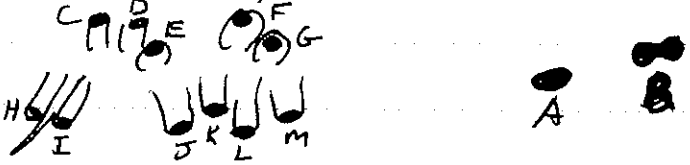
POC

Bag	Spl	Vol	Δ	POC	Δ POC	% Rem
1 (50)	Spg A	4.01	.058	42.0	-10.4	19.8
2 (51)	Spg B	4.0	.056	40.7	-11.7	22.3
3 (52)	Spg C	4.2	.045	33.9	-18.5	35.3
4 (53)	Spg D	4.2	.045	31.1	-21.3	40.6
5	Amb	4.1	.074	52.4		
6	BLK	–	–			
$\bar{X}_s$				36.9	-15.5	-29.5%

76-8-11.1
Retrieved Board of Lawal + Surveyed – see Later Map.

12 Aug 76 - (488) Map Lava bowl + Photo Chris' area

13 Aug 76 - (489) Dive at Moorings 8 am 830 - 1000 in water for Last full work dive on Verongia tubes



	Spg	Vel	Osc	L	D	POC Bits	O_2 tubes
Census	A Gh	12.5	35×40	45	85	6 ↓3	1
	C Gh	9.5	29×31	26	60	1	2
	F Gh	13.3	25×30	29	55	2	3
	Gh D w/ Sigmoids Hydroids	12.5	22×22	23	60	4	4
	Amb.					5	5+6

Velocities Verongia tubes

9.5	9.5	8.5	O diagh	9.5	11.6	10.7	7.5
9.5	9.5	10.7	10.7	12.5	6.5	11.6	7.5
8.5	10.7	15.6	10.7	15.6	7.5	11.6	5.8
12.5	9.5	12.5	9.5	13.3	4.6	7.5	6.5
10.7	12.5	12.5	11.6	11.6	9.5	7.5	6.5
10.7	10.7	15	13.3	7.5	9.5	10.7	6.5
8.5	12	15	7.5	9.5	10.2	10.7	5.4
9.5	12.5	10.7	11.6	7.5	11.6	10.7	6.8
11.2	O diagh	O diagh	8.5	11.6	10.2	10.7	

+ Xestospgia's: (7.4, 5.4, 5.8)

Oxygen Calib 22½°C set at 7.05 ppm

Tube	spl		
5	Amb		6.35
1	Spg A	54	5.90
2	Spg E	55	5.90
3	Spg F	57	5.90
4	Spg D	56	5.96
6	Amb.		6.28

$\bar{X}_A$ 6.315

$\bar{X}_{sp}$ ~~5.915~~

Δ_{O_2} 0.400

6.32

POC

Bag	spec		Vol	~~Abs~~	POC	ΔPOC	%
1	Spg C	55	4.14	.069	x 48.4	− 34.7	41.8
2	Spg F	57	4.09	.062	x 44.0	− 39.1	47.1
3	Spg A	54	4.06	.080	~~58~~.1	− 25.0	30.1
4	Spg D	56	4.04	.117	84.4 DAMAGE	ARG	
5	Amb 1		4.02	.115	83.1	−	
6	Spg A	54	4.23	.062	42.8	− 40.3	48.5
7	Amb 2		4.02	.121	87.4	−	
8	BK		−				
$\bar{X}_{sp\,4}$					48.3	34.8	41.9

Evening Clean up & Pack
Ruth Jolie Anne & Paul Leave.

Velocity Scaling of Meters

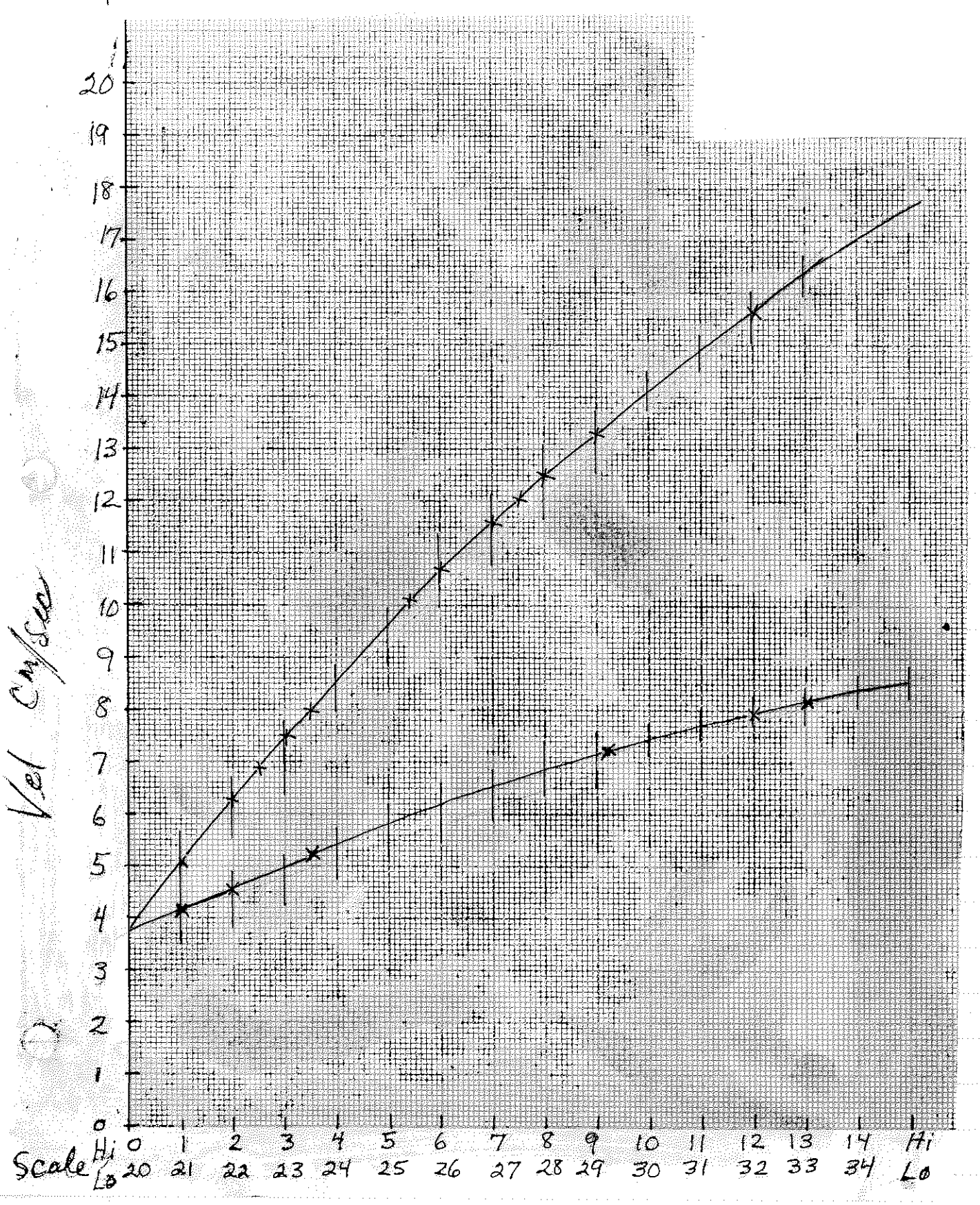
(A) hi

Meter	Vel c/sec
0.5	
1	
1.5	
2	
2.5	
3	7.5
3.5	8
4	8.5
4.5	9
5	9.5
5.5	10.2
6.0	10.7
6.5	11.2
7	11.6
7.5	12
8	12.5
8.5	13
9	13.3
9.5	13.8
10	14.2
10.5	14.6
11	15
11.5	15.3
12	15.6
12.5	16
13	16.4

(B) - LO

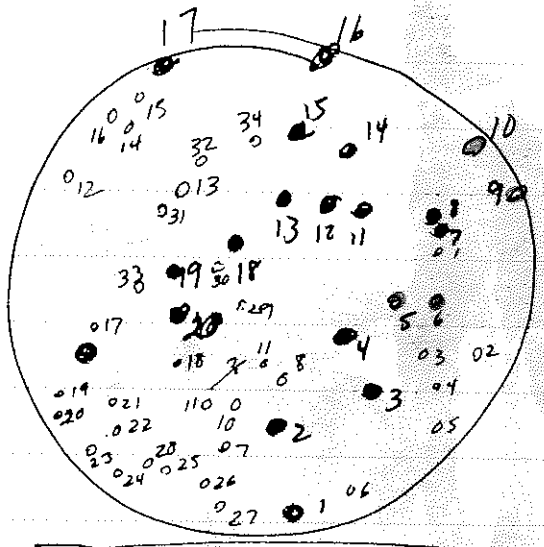
Meter	Vel cm/sec
20.5	4
21	4.2
21.5	4.4
22	4.6
22.5	4.8
23	5.0
23.5	5.2
24	5.4
24.5	5.6
25	5.8
25.5	6.0
26	6.2
26.5	6.4
27	6.5
27.5	6.7
28	6.8
28.5	7.0
29	7.2
29.5	7.3
30	2.4
30.5	7.5
31	7.7
31.5	7.8
32	7.9
32.5	8.0
33	8.1

Calib of Meters



Spec # 76-8-11.1

Lava Bowl 11 August 1976 Retrieved



ORIG Collection Lava

1. Gone - No trace
2. Gone N.T.
3. Gone N.T.
4. SKel only + ½ eggs worth
5. Gone N.T.
* 6. Good - BIG + BROWN
\- 7. ½ dead - copepod + ciliate attack
\- 8. 90% eaten - SKel small yet
9. Gone N.T.
10. Dead - only SKel left
* 11. Good OK!
* 12. small but alive - ciliate attack
\- 13. BIG but ½ dead - copepod + ciliates
* 14. - OK healthy
15. ½ dead - ciliate city
16. Dead SKel
17. Dead SKel - worms
18. Gone N.T.
19. Gone N.T.
* 20. ½ dead - worms
21. SKel only.

6/17

"News"

1. gone
2. gone
3. gone
4. gone
* 5. OK - orange
6. gone
* 7. OK - migrated?
* 8. OK
9. Dying - disintegrating
* 10. OK
* 11. OK
* 12. OK
* 13. OK
* 14. Gone
15. Gone
* 16. OK small
* 17. OK
18. Gone
* 19. OK
* 20. OK
* 21. OK
* 22. OK
* 23. OK
* 24. OK
* 25. OK
* 26. OK
* 27. OK
* 28. OK

New New

* 29. - BIG!
* 30. OK
* 31. OK
* 32. OK
* 33. OK
* 34. OK.

19/28

~~35~~ + 6 settled

TRIP 1976 Results

Velocity Measmts

7 Aug 24 ✓
5 Aug 13 ✓
3 Aug 21 ✓
1 Aug 25 ✓
31 July 7 ✓
9 Aug 3 ✓
11 Aug 4+21=25 ✓
13 Aug 75 +3 rejects; 21

~~175~~ meas. 193 incl the hole + zeros

POC

Amb-Bottom?

51 ½ way Buoy
45 ½ way Buoy
60 Kinks
+34 Mooring low proced.
56 Mart
49 Moor
30 Nurse
43 Moor
72 Mart
71 Moor
51 Moor
49 Moor
48 Mart
45 Kink.
53 Moor
55 Moor
54 Kink
68 Kink.
52 Mart
47 Hole
56 Nurse
70 Kink series
52 Hole
83 Moor.

N 24

Spg #s

Rem	% Rem	
19	37	(1)
19	42	(1)
6.6 (11-4)	19	(3)
15 (13-16)	27	(3)
21.3 (20-23)	44	(3)
16 (10-18)	53	(3)
5 (4½-6)	12	(2)
35 (36-39)	49	(3)
32 (29-39)	45	(4)
12 (9-16)	24	(4)
7 (4-10)	14	(4)
16. (8-23)	34	(3)
2½ (1-6)	4.6	(4)
16 (14-18)	31	(4)
9 5-15	19.3	(5)
16.7 (13-19)	29	(4)
16 (10-21)	30	(4)
35 (25-40)	42	(4)

N = 59

Resp

-4 4
-4.7 4
-5.6 4
-4.8 4
-4.4 4
-5.6 4
-4.1 4
-5.7 4
-5.6 4
-4.3 4
-4.8 4
-4.7 4
-5.1 4
-6.3 4
-5.2 4
-6.9 3
-6.3 4
-5.2 4
-4.5 4
-5.6 4
-5.0 4
-5.2 4
-5.0 4
-5.2 4
-6.4 4
-6.3 4

N = 103

Litch Pd.

Dive Summary Barb 76

	TANKS	BOATS	NOTES
June 16 June	Arrivie		
17	—	—	— No Dive
18	1	Big W (PM) Pd CR	2 Litch's + Logan + I
19	—	—	split tank - w Chris CRC - No chg
20	—	—	—
21	1	—	to Kirks w Avon + Kirk
22	1	Big W ½ (Am) NCU	Litch's + Logan + Kirk + [illegible]
23	—	—	(Litchs + Logan went w/o me)
24	—	—	—
25	1	Big W½ Am	Litchs + Logan Nurses
26	—	—	w hank off CRC
27	—	—	—
28	1	Sm W (Am)	Litch + 9 only Mantled
29	—	—	—
30	1	Sm W PM	Kirk Am Avon + Chris PM
July 31	1	—	Diving w Logan
32	—	—	Lazy day Lab + Probe work
3	—	—	Mooring w Hawk Diving + Load Hooks
4	—	—	Jolly Northeast No Dive
5	1	Sm W (Am)	w Chris for Samples
6	—	—	No Dive
7	—	—	Moorings w CH - Diving + Pack Tanks
8	—	—	No Dive - snorkel
9	1	—	w crochen + Sm Wood to hi for use
10	—	—	
11	1	—	Mooring w Divers
Totals	10 Tanks.	Sm Wood $7.50 Big Wood 5.00 $12.50	

		Tank	Boat	
July	12	—	—	Dive shallows Lloyd + Steve - No Boat vs tanks
	13	1	—	Avon w Ruth
	14	—	—	Kirks + Avon - used tanks
	15	1	Big W AM	Deep Dive 200' w Crocker
	16	—	—	Daisy + moving used tanks
	17	—	—	No dive
	18	Jamaica	out	
	25	Jamaica	Retn	
	26	1	—	Lloy + Chris Rubber Bt
	27	1	sm W	w CH + Mallet
	28	—	—	Diving + part tanks
	29	1	—	Diving + motor
	30	—	—	No Dive
	31	1	sm. W	Mallet
Aug	1	1	sm · W	~~No Dive~~ To Kirks
	2	~~2~~ —	←	~~Daisy + Moving~~ No Dive
	3	~~2~~ 1	~~5~~	~~To Kirks~~ to Moorings.
	4	~~2~~ —	sm W	to ~~Mallet~~ To Kirks
	5	~~2~~ 1	~~sm~~ W	to Mallet
	6	~~2~~ —	—	—
	7	1	sm W	to Hole
	8	2	—	CH off Hole Tour
	9	1	—	Coral Avon to Nassau
	10	1	sm. W	Kirks for Vert Hoses 1-2,
	11	—	sm W	to Hole for Set 7-8 am
	12	1	—	Photog CH area
	13	1	—	Diving + Moor.
		16 tanks	sm wood 8x 20 ea lg wood 1x 5.00	

totals of Trip

My Uses: ~~Total~~ Total 26

Sm Wood	11 x	2.50	27.50
Bg Wood	2x	5.00	= $10

this duplicated in Barb File

Pharma Spg Collection Seen: 10 Aug 1976.

Letter	Identity	Spec	Wet	Dry	Frozen
A.	Iotrochota birotulata		×		×
B.	Xestospongia muta		×		
~~E~~	Callyspongia vaginalis	same as O	×		
G	Agelas dispar		×	×	×
H.	Halichondria sp (same as J & S)		×		
I	Desmapsamma anchorata		×	×	
J	Halichondria sp (same as H & S)		×		×
K.	Hymeniacidon sp		×		×
L	Hemectyon Verey		×		×
M	Chiona langae		×		×
N	Verongia sp		×		×
O	Callyspongia vaginalis	same as F	×		×
P	Tedania ignis		×	×	×
Q	Dysidea fragilis		×	×	×
R.	Mycale sp		×		×
S	Halichondria sp	same as H & J	×	×	
T	Spheciospongia vesparia		×	×	
U	Spheciospongia sp.		×	×	×
V	Neofibularia nolitangere		×	×	
AA	Verongia n sp (Stiche)				×
BB	Verongia fistularis				×

Re jar w/o numbers or letters

Verongia sp. | × | | × ??

Dr. Dale Bonar
Dr. Fu-Shiang Chia cottage 10 Lab 1
Dr. Kristian Fauchald
Pr Paul Illg.
Dr Eugen N Kozloff
Joyce Lewin
Dr. Rita O'Clair – Ast Dr Nyblade
Dr. Carl Nyblade
Dr Mary Rice
Dr Pamela Roe
Dr. Russel Zimmer
Dr. Heath – Med Center on San Juan

Dr. Thomas Schopf – Lab 1 Coral Diver.

June 77

Friday Harbor Lab - 21 W - Summer 1977

Left Montreal w Ann + Kids Sat 18 June 1977 — 8 30 am
ARRIVE Friday Harbor ~ Fri 24 June 1977 ~ 2 pm
Sigh in + move in - Lab space - Lab # 5.

24 June 1977

Director - Richard Strathmann

Diving: officer: Charlie EATON
diver avail Dr. Ron Shimek

Investigators: Lab 5. Dr. Leonard Passano + Janet Lernard
Dr J. Augenfeld
Dr. Alan Butler
Dr. Sarah Woodin
Dr. Linda Kahan
Dr. Richard Cloney.
Dr. Walter Schwab + Josesphson
Dr. S. R. Wellings
Dr. Colin Hermans
Dr. Joann Otto

Drs. Norman McLean
Robert Paine
Roger de Roos
Charles Thayer
Larry Lipke

←

25 June 1977 - Sat.
Moved in, Met Sophie at Airport

26 June 1977 - Sun
Trip to English Camp & hike
Fished w Jim in Evening. - No Luck

27 June (Mon) - Met Strathmanns & Eaton - set up medical Appt & went through Lab - move in & get Glassware - etc. Fished w Jenny in Evening - 4 fish

28 June (Tues)
Made up 2 Fixing Chemicals for EM - Glut & Picric
4pm - physical Exam at Inter-Island Med Center - Dr. Heath.
Evening - Nite light - Zoea + a few worms & some medusae
Fixed next day for 398 course

29 June Wed - ~~Not~~ Fixed the night light specs - Formalin
Met George Mackie over for the day &
Dr Tom Schopf geologist - Fixed time at Georges Pt
for Friday 10:30 Am.
Aft - Ann, Sophie & Kids off for Ferry ride
to check on Marvista for low tide tomorrow.

Dinner at the wounded pig

30 June Thurs — Low tide collecting at False Bay - MarVista Resort headland w Sophie, Chris & Kids - phoned for parking OK. Collected a few sponges : noted:

a) a slimy brown sponge encrusting

b) Orange encrusting, "dry" feel

c) yellow encrusting, red slime/dry feel

d) high subtidal/intertidal volcano yellow/purple

Also noted general fauna - prosobs abs, lots of algae, compound white ascidians, large solitary orange-dotty ascids; nudibranchs + tectibranchs feeding on sponge + ascids, cucumber - white + orange very common, Cryptodirtan, Rock crabs, grapsid crabs, barnacles, blenny eels, porcelain crabs, few worms of note, etc....

After collecting on headland drove to ~~the~~ False Bay + walked out on tidelands - sandy + little mud.

Afternoon got diving gear in order + killed the sponges. Spotted a false Killer whale off the lab. Stopped in Town. Made up Osmunic Solⁿ

Fished w Ann in evening - got 4 fish off Brown Ds - OK!

Count 10-36-24 Frank Loden

1 July - Done w Tom Schopf to Pt George
Fri. Collected & Observed

Strongylocentrotus franciscanus - red; S. droebachiensis - green
Abalones: H. Kamchatkana, Jolaetes + Pycnopodia, Cucu, Nudibr
Lots of scallops below ~ 25' done to 58' max
Time out in boat 10:30 AM
in water 11:17 AM → up 11:52 (35 min)
On Boat 12:00 (43 min)
Max depth 50'
Air 2500 in 1100 out : 1400 lbs
Retn by 12:15 pm

Collected: ~ 12 scallops
a few brachiopods
a branchy bryozoan ✓
3 large Nudibranchs
a yellow branchy spg. - # 77-7-1.1 Form Axinellid? or Hymeniacidon?
a large compd Ascid.

2:30 to Med Center for EKG & Audiometer ($32 worth)

2 July - Sat

Ground form Decor Lamp seal beam.

Got Cmpd Scope

Worked out dive w Tom Schopf for Monday.

Typed Chris Hawkins letters

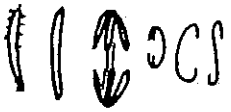
To Town for Bulldog clamps

Supper to Miramar Restraunt w Soph & Anne Kids

Eve - went to work on Scallop/spg from Pt George

		Scallop size	Spg dist							
Mycale sp	1)	[redacted] Large Sc.	Red Purple	Dorsal		low encrust	Retic Surf. #77-7-5.2		Few	Mycale (A)
Mycale sp.	2)	large Sc.	RED Purple	Dorsal + Ventral barnacle		low encr	Retic Surf.		Few	Mycale (A)
Mycale adhaerens	3)	Large Sc.	Blue Purple	D + Ventral		Volcanos Thick	Retic Surf #77-7-5.1		MANY	Mycale (B)
Mycale sp	4)	Med	Red Purple	D+V		[redacted] Thin encrust	Retic surf		Few	Mycale (A)
Mycale adhaerens	5)	Med-small	Blue Purple	D+V		Thick but Not quite Volc	Retic surf		MANY	Mycale (B)
Mycale adhaerens	6)	Large	Blue Purple	D+V		Med thick No Volc	Retic surf			Mycale (B)
Myxilla incrustans (Esper)	7)	Med large	White to very Pale yellow	D+V		Very thick Fistulate	Not Retic #77-7-5.3			
M. "	8)	V. Large	Golden	D+V		Thick Almost volcan	Canal Network.			
M. "	9)	Large	Golden (Algal invasion brown)	D+V		Thick but No Volcanos	Canal Network			
M. "	10)	Med Small	Golden			Med thick No Volc	Canal stellate #77-7-5.4			

Myxilla incrustans 11) Small Golden D+V  Thin encrust. Canal pattn 

Myxilla incrustans 12) Large Golden (D)+V  Thicke encrust Canal ptn 

degenerated in ? bad condition ↖

What is the cause? - predation or disease

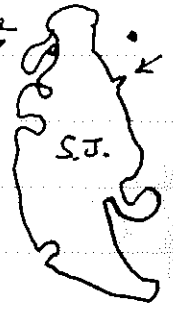
13) large - NONE - 

Algae-worm covered

3 July 1977
Sun. - Took Kids fishing in rowboat in afternoon. Eve check over diving equip - get Syringes ready for sample collection.

Saw Sophie off on San Juan Airlines

4 July 1977
Mon - Holiday Went on boat trip + Dive w Tom Schopf & Point ..... 3/4 way up East side of San Juan Is.



Took Kids, Ann, Tom + Roz, Miles + Whitney Cooper + Bill.....

Tom forgot Regulator - we dove separately - Max 45'

I used Collector Syringe - No sponge - filled the Fixative syringe OK - fixed a small rock jingle: IN: 2:35 out 3:10 (35m)
IN 2400 out 1500 psi
Temp = Cold

Prev Fauna: Starfish, cucs, Urchins few, few Brades
Ascidians common, Lots of Psolus; very few spgs at all - even under rocks dominated by Psolus & Isogonopora

1st underwater color photos - some stars, urchins, etc

10 - 50'.

5 July 1977
Tuesday. Read up on Mycales' in Bakus 66

The Red-purple Mycale cannot be any of the other species in the San Juan area: Mycale richardsoni, M. hispida, M. lingua, M. psila. It can only be included in Mycale adhaerens but adhaerens has sigma; It is clear to me we have 2 different sponge here so I will try to keep one of each in preservation & dill try to do some grafting also.

Fixed: 77-7-5.1 ✓ M. adhaerens purple volcano. both valves 10% F orm.

77-7-5.2 ✓ Mycale sp red purple encr 1 valve 10% Form.

77-7-5.3 Myxilla incrustans white both valves 10% F

77-7-5.4 Myxilla incrustans typical low encrust form 2 valves

& Fixed some Chlamys eyes in Bouin for histology. 10% F

Put together 5 "Graft" tests:

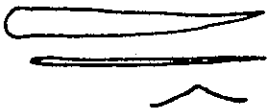
1) Mycale Blue① vs Red②
2) Mycale Blue① vs Red③
3) Mycale Blue④ vs Red③
4) Mycale Blue④ vs Red②
5) Mycale Red① vs Red② (Control) some spec.

(See Scoring on 21 July 77)

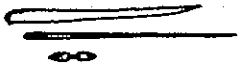
Foliae Bay Rock:

1. Slimy tan sponge - No skeleton at all?

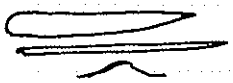
2. ~~Pink~~ Brite orange hispid encrusting "dry" feel
Ophlitaspongia pennata



3. orange hispid "dry" - slightly less red than above
Esperiopsis originalis



4. Golden orange "dry" encrusting Ophlitaspongia pennata



5. Bright Red "dry" encrusting · Ophliaatongia pennata

6. Yellow-tan halichondriid looking encrusting spg. - Yes Halichondria

7. Soft encrusting Halichondrid-like yes Halichona

6 July 1977

Wed. Literature Reading ~ 4 hr

Predation

* Noted in Lab Tank

1 Big Archidoris? eating on one of the sponges - ~~Mycale~~

Mycale cf adhaerens? - removed it & saw it had cleaned off about 1/3 of the specimen - Fully cleaned!

graft Blue

Also one of the red ones Mycale adhaerens had been eaten off! similarly - Not all but a good piece gone!

Actually on inspection 5 specs on 4 of the 5 graft sets have been attacked - 3 Red & 2 Blues!

PM: Done w Tom Schopf at Cantilever pier

in at 315 out at 345 to 100' bottom ~ 20 min in grooves 2400 - out 1500 Lbs

Continued photog of Roll Color I Kodachrome 64

Collected ~ 13 scallops w spgs

Saw: big Lizard at 90' - Big ~ 30#

Saw octopus

Came from gravel-cobble & Cliff wall at 90' - Big Metridium

+ Lots of scallops - one funnel sponge photo & small.

+ Not collected.

Corynocephalus at ~ 45'

Fished w Ann in Eve till 11pm

7 July 77 - up + To bank - Hardware Store for tackle
Thursday Talked w Tom + get set For Saturday + tomorrow dives
Worked on sponge / scallops collected yesterday at Cantilever pier.

Chlamys hericius x Myxilla incrustans:

scallop	64 mm ; spg	Yellow-Gold	D-100 %, V-95%	
	63 mm ; spg	yellow Gold	D-5%, V-80%	w eggs
	56 mm ; spg	Yellow	D-100, V 60	w small embryos w Sperm
	54 mm ; spg	Yellow	D 100, V 75	
	60 mm ; spg	Golden	D 100, V 100	
	62 mm ; spg	Gold	D 100, V 90	w eggs
	57 mm ; sp	Gold	D 100, V 85	

N = 7

Chlamys hericius x Mycale adhaerens:

68 mm ; spg	yellow-tan	D 100, V 90	with C's
63 mm ; spg	Rose-Gold	D 100, V 95	No C's ; w embryos
61 mm ; spg	yellow	D 100, V 85	No C's ; w Many Eggs + Embryos
64 mm ; spg	Rose Yellow	D 100, V 95	No C's w many Eggs + Embryos
60 mm ; spg	Rose Yellow	D 100, V 99	No C's w eggs + Embryos

N = 5

Chlamys hindsii x Iophon patterson

54 mm ; spg	white-creme	D 100, V 30	w larvae + Big Eggs

N = 1

Totals N = 13

Put in aquarium 1 shell of each Mycale (yellow) + Myxilla yellow without the scallop - to see predation by the Archidoris

8 July 1977
FRI

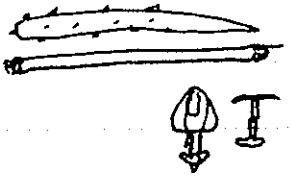
Up at 8 - to lab at 9. saw Charlie Eaton + provisional OK medic on diving - he will call later today for confirmation.

Archidoris

To Lab - nudibranch eating away on Spgs -
A still on the Red/Purple Mycale grafts - eating happily
B on Mytilla about 3/4 of it gone now - Preserved what was left through drying - Spec # 77-7-8.1

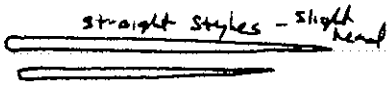
Dive w Tom Schopf at Shaky Cove - Leave ~ 12:30 pm
Dive 12:45 — 1:05 (20 min) to 100'
Collected: many scallops + 3 pcs of Free living Spgs + 3 small white Nudibranchs + finished first Color Role.

Spg 1 massive - bulbate - branching - whitish crumby bread consistency



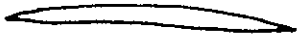
Iophon pattersoni (BwbK, 1866)

Spg 2 Ramose - branching Golden orange yellow - Tough Slightly inflated tips



Syringella amphispicula de L 1961

Spg 3 Encrusting w small thin volcano osculs



Haliclona spp.

Put 2 Big yellow Nudibranchs in bowls to collect feces.

Gorgonocephalus seen.

9 July 77 Sat — TRIP to North & Speiden channel w Tom Stroupf. left 11:15am

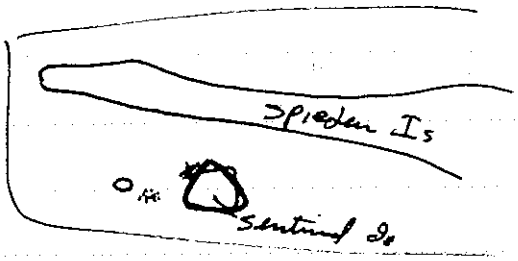
a) Stop at Lighthouse pt ~ 11:40 - inspect Rocks

b) over to speiden Is - met Sam. Geological

c) over to weak tip of Speiden Is digging out fossils.

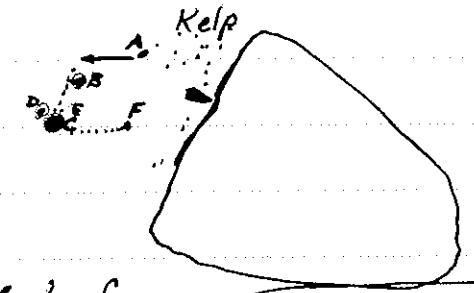
d) to Sentinal Rock for Dive

- 123.16°W
+ 48.64°N



Done at 2:10pm 2400# Air

Began at pt A & headed Down slope at Compass heading of E 90° (I.E. west); hit 100' & moved to left turn - encountered 1st Aphrocallistes at B' not certain of its identity or more on & encountered C & D & E ~ 75 feet further on - stopped & started Sample gathering - 1st 2 Bovine samples from C then 4 Client samples from C 2-5cc & 2-3 cc syringes.

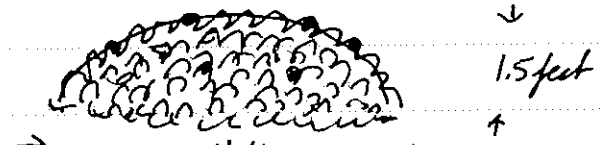


77-7-9.1

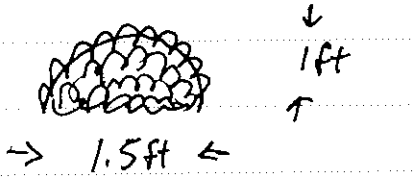
77-7-9.2

Gathered a mass of fragments from spec D & then moved up slope from out of Air. Surface at 2:32 at F & 1000# of Air left

Size estimates C:



A & D

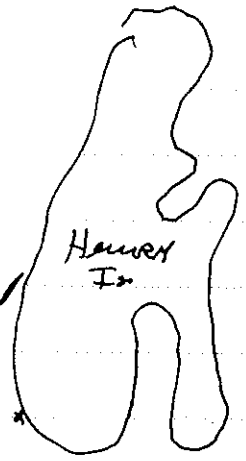


e) Dressed & headed into Roche Harbor for a coffee & a ice cream cone.

f) motored to Henry Is for 2nd Dive
Done ~ 4:40 pm on outer Southern trip
to 100' – Spectacular Wall under nets/tent

#77-7-9.3 → Lots of yellow branching strong sponge – one collected & dried
few scallops & no hexactinellids

#77-7-9.4 Up ~ 5:10 w ~ 1000 #'s air left
one polymastia sponge from wall Fixed on Phil's plate



g) Return to FRI HAR Lab –
~ ~~half~~ 1/4 of way back propeller slipping.
& back late ~ 7:25 – 8:00 pm.

Saw whales on return & spotted two bald eagles on the trip.

Return & Wash out Equip; Used total of 13 3/4 tanks of gas on the trip!

Change Solvis on preserved specs & place specs in Formalin at ~ 9:30 pm.

Bed.

10 July 1977

Sun: Began ~ 2pm to process *Aplysiacallista* tissues for EM.

4 Glut. specs: from (Glut$_2$) – Rinse$_1$ → Rinse$_2$ → Rinse 3 → Osm 1 ½ hr → Osm$_2$ 1hr
→ Rinse$_1$ → Rinse 2 → SPLIT → with spicules Dist W$_1$ → Dist W$_2$ ↓ 50% ROH

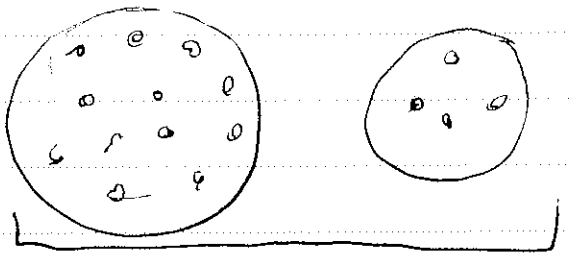
SPLIT ↓ RFNse 3 ↓ HF 3% in buffer in 4:30 out 7:30 } 3hr
↓ $H_2O_{(l)}$
↓ $H_2O_{(s)}$ → 50% ROH

(HF treatment seem with 4 pieces of Form fixed Tissue to test for desilicification = Tested at 3hrs silica gone!)

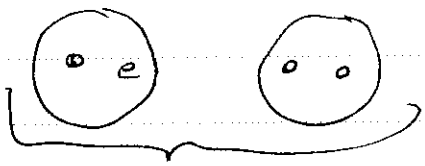
50% ROH
Nosil ↓ ↓ Sil 4 PES
70 ROH
95 ROH
100 ROH
100 ROH

PO$_1$ → PO$_2$ → PO$_3$ → add 1st Ep 1hr → add 2nd pt Epon 1hr → add 3rd pt Epon 2hr
↓ 2hr
Transfer to dishes ← (1 Big dish w desil pcs; 1 small dish w desil pcs; 2 small dishes w Silica Pcs.)
↓
to 60°C overnight 3:00 AM Mon morn
↓
to 60°C Mon the 11th at noon.

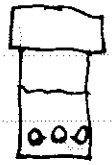
Bed.



1-1 F



Silica bearing



← 3 Form fixed pieces (discs) desilicified - Fixed after ~ 7 hrs in plastic Bag.

11 July 77

12 noon transfer Em from 40 → 60°C oven

Processing materials in the Tank.

1. Polymastia pachymastia from Henry Is wall ~60' on Sat # 77-7-9.4 fixed in 10% formalin bag.
2. Looked over worms in tube + beautiful asexual + Cupola Ascidians from Henry Is.
3. Scallops from ~~Hobby Island~~ Shady Cove dive.

C. hericius x Mycale adhaerens (sic) :

	60 mm	Blue-~~Gold~~ Spg	with C's	no embryos	100/90
Larvae Collected in Bowl ← L	66 mm	Blue-Gold spg	with C's	Big Embryos	100/95
Larvae Collected in Bowl ← L	70 mm	Blue-Gold spg	with C's	Big Embryos	100/95
	70 mm	Blue-Gold	no C's seen	Big Embryo	100/90
	68	" "	C's	w large Eggs	100/99
	68	" "	C's	large Eggs + Embs	100/9
	67	" "	No C's seen	No Eggs	90/10
	64	" "	w C's	w Embryos	100/9
	67	Red "	No C's	Many Small Eggs	80/8
	64	Red	No Cs	" " "	100/9
n = 12	58	Red	No C's	" " "	100/9
	53	Red	No Cs	" " "	80/60

C. hericius x Myxilla incrustans

62 mm	Dark Brown	← Many Diatom species in Surface Film DH/10 spg.	No Eggs	100/70
52 mm	Golden		" "	100/100
56 mm	Golden		" "	100/95

Control

	49 mm	Golden	Myx	no eggs or Embryos	100/100
	36 "	Golden	"	No eggs or Emb	100/95
	52 "	Golden	"	" " "	100/100
No 7	56 "	Whitish thicke	Myx	small eggs many.	100/100

C hindsii x Iophon patterani

	49mm	White thk Ioph.	Mod size eggs	90/10
	51 mm	White thick Iph	small eggs	100/75
No 3	52 mm	" " "	Mod size eggs	100/-

Others:

C. hercinia 63 mm x Yellow thin Iophon, No eggs 10/15 !

C hercinia 54mm x thin white Hymedesmia w Embryos 100/90

C hindsii 38mm x gold Mycale ad w Cs No Embs 60/40

Totals

(21) C hercinia → 12 Mycale (13), 7 Myxilla (7), 1 Iophon (1), 1 Hymedesmia (1)

(4) C hindsii → 3 Iophon (4)

25 25

Inspected Nudibranch Archidoris Montereyensis feces:

A fed on Mycale adhaerens → all beautiful Mycale spicules w minerals intact & in place - in Rosette yet & apparently sponge not disturbed; Ciliates feeding on leftovers - 5 pellets all Mycale w Cs

B fed on Myxilla - 35 pellets all perfect as above - Beautiful.

12 July 1977

Tues Mycale larvae survey:

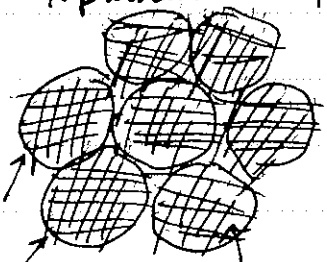
30 of them have settled in bowl – sectioned swimming ones to another bowl + put those out into cleaned aquaria.

77-7-12.1 JR
77-7-12.2 LT

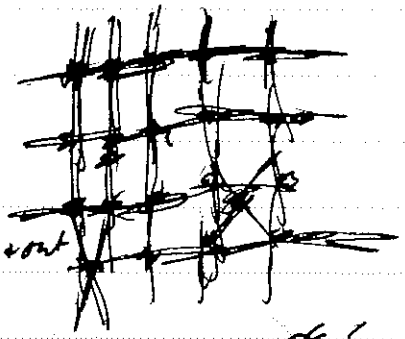
Larvae: swimming  rotate counterclockwise on axis
Not all are behaving well

Fixed some in dark + light conditions.
Made Larva flat observation dish but not behaving predictably

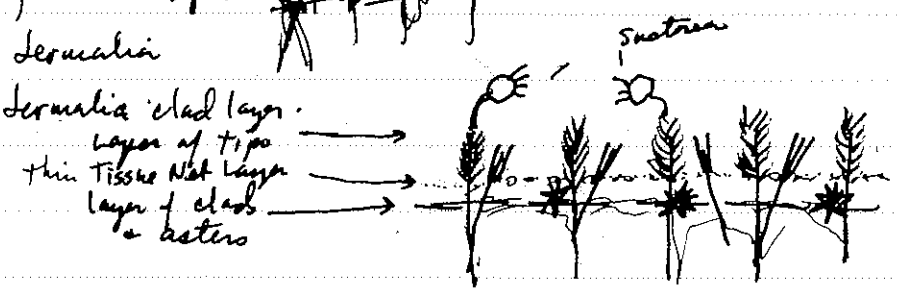
Look over Aphrocallistes tissues. 77-7-9.2 Form Fix Survey



Grating of dermalia apical over inhalant side. Not present on exhalant side.



Scopules + spiney ends of dermalia up + out
Sinctoderm on tips of dermalia
Tissue layer above dermalia 'clad layer.



13 July 77
Wed

Removed Epon blocks from 60C oven + marked them.
Got Alcohol + beaker + etc from storeroom
Xeroxed medical certificate.

Looked at Larvae of Mycale

Bowl 1 w ~ 30 settled - still going - None developed to 4 tentacle stage yet - back to submersed position.

Bowl 2 w larvae - ~ 8 settled - sorted larvae the 'best' behaving & physically nice ones were sorted into bowl 3 polyethylene.
The rest of poor active & reverse active & deformed ~~into~~ back to bowl 2 - both bowls 2 & 3 in floating dish.

~~Extra Dive~~

Ready for Dive

Dive w Tom Schopf - to Fisherman Bay - Left in "Phantom" at 1:15 pm

Dive 1 2:15 pm southern-west margin eel grass for 5 to 12 feet deep collected some sponges - lots of apparently Halichondria (Checked & disposed ✓) some halichondrids here. - few species but large biomass - Many Mycale's ✓ 77-7-13.4 Crabs, anemones, small burrowing worms Ophiodromus free living, etc - interesting place to survey - Mud bottom w worms & bivalves. Till ~ 2:30 pm

MANY! ✓ 77-7-13.5 ✓ 77-7-13.6 Melibe, etc Many ascidians

Dive 2 2:45-3:05 pm Center of the bay - 15' feet deep - current scoured - blades of washed in Laminaria in a Terebellid bottom community - tentacles like Cobwebs over everything - Crabs Pugettia in laminaria blades & on sparse eel grass. big burrowing anemones, sponges still abundant, lots of shells; Crabs masked w sponges

Myxilla incrustans? 77-7-13.7 ✓

Mycale lingua 77-7-13.8 ✓

Dive 3 in Entrance 3:30 - 350 – channel entrance w currents going back & forth - rapid & cold. West Shoreline of Opinail narrows as a crust & Ouencia worm community - Central channel w eelgrass & laminaria, cobble - Kelp & pycnogonids, giant clams Ziriphea (Cleodudes), lots of sponges again. collected some specimens.

In all habitats the hesionid worm Ophiodromus is free living on the surface

Dive 4 to Turn Island - off Eastern tip w deep face 5:10 - 5:30 down wall of Metridium & small white Cucumbers in unbelievable abundance w Psolus & Cucumaria as well - Cucumber Heaven; collected scallops ~6 to 10'

77-7-13.1 + free living pieces of a) white upright sponge - Iophon? yes Iophon!

77-7-13.2 b) encrusting on rock sponge - volcano low: Halichona

77-7-13.3 c) Red hard sponge Probably Xestospongia vanilla ~Oleas only.

d) Rock w Allopora nit.

Dry

Return w bio & lab. cleaned up -

14 July 1977
Thurs. - looked over sponges from 13th Dive - set id's for some; Get material for embedding ready (paraffin). Checked over camera for close ups - bent pipe in finder.

Folks Arrive 12:55 ferry - took out to Motel & fooled around - Tom in Evening. - Little work; getting ready for tomorrows dive.

15 July 1977
Prepared solutions for sample preservation.
(A): Boat fixatives - Bouins & Formalin
(B): Water samples of Amb & Exh water -
a) Flushed all syringes w Millipore .22µ Filtered Dist. water
b) Filled one 30cc w millipore filtered water & Capped
c) filled one 5cc w 100% ETOH & capped
d) filled one 5cc w 10% Formalin & Capped.
(C) Readied Camera for photos; Loaded Filters w Clean mounts

Left FHL at ~ 11:10 w Bill & Tom Schopf (walker)
Stopped on Spieden & let Bill off ~ Noon -
Moved to Sentinel Is. for the up & dive
Done w Camera & Bags & Syringes at
12:54 pm - pretty calm but slight current.
Down to 100' & met bot heiarch Aphrocallists -
was a fairly steep hard orangeform - at cobble-rocks

-123.16°W
+48.64°N

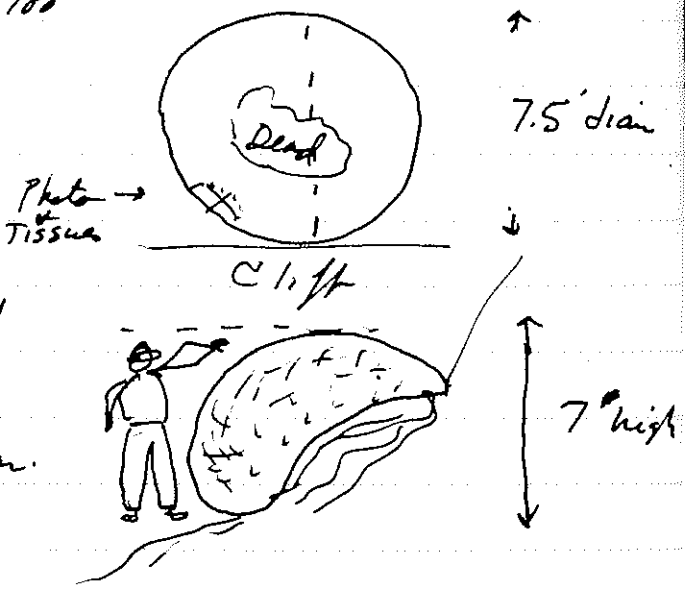
Slide 2429-2430 Mesentrohime ecology

Filter 1 AMB
Filter 2 Exh

bottom of the canted clean platform.

77-7-15.1 (A) This Spec Photographed - water samples collected but No Tissue samples - 77-7-15.1

Tiss 77-7-15,2 (B) Moved down current - strong current to south on bottom &
An Immature Specimen at 100'
Pale color (see below)
Slide 2431-2-3-4 Photographs of edge - tried
Photos of whole thing
Collected Big tissue sample of edge (Base)
at X; Advise only to depth of
~~4~~ 5 to 6" depth
Measured 5 x length of crowbar.
Slide 2435 Dian: 90 inches or 7.5 feet
227 cm or 2.27 meters



Tiss 77-7-15.3 (C) Moved downstream again & met ~~[illegible]~~ for
Bushy orange form - few tubes but solid
Photographed & collected ~~but~~ large pieces for Tissues.
moved downstream & met
(D) another Orange branching form - No action
began ascent & met - Time 1:14 [Bottom time 20 min]
(E) another orange branching form but Low at 60'
on the ascent pattern - almost where we descended

On board boat ~~she~~ immediately put parts of both orange & pale sponge in both Bouins & 10% Formalin.

Then processed water samples:

1. Pushed 29 ml of each sample through Syringe
~~2 Rinsed w distilled water~~
2 formalin fix
3 rinse w distilled water
4 100% ROH 2 cc
5. 30 cc of Air but of course didn't go through.
6. Left in holders to dry. - Filter 1 - Amb
Filter 2 - Exh

Off to Roche Harbor to store -

To Henry do to have 2nd Dive - Nice first photograph - Descent at 3:40 pm - up 4:00 pm.
Max 80'
photographed fishes, black Cucumbers on walls, bryozoa, urchins, clubby sponge etc etc. Nice Dive.
Finished Roll #2.
Retn to pick up Bill at 5 pm & on to FHL retn at 6 pm.

Eyepoint work up.

Evening photographed the 2 large spaces [77-7-15:2/3] on blue background w flash for color.
[Pale] - Methuen 4B7 - "Orange Yellow" = "Yellowish orange" = Reddish Yellow = "Banana" = "Chrome Yellow"
[Orange] - Methuen 6B7 - "Orange" or "Carrot Red"

16 July 77 -
Sat.

Clean up sponges
Dive w Tom Schopf at Canteleiner for 30 min
Max 80' 11:45 - 12:15 to put in Charlie Thagard plate.
~~Fishing~~ Supper w Folks at Marina Restaurant -
+ Talk w Bob Baine + Mimi ~~Cole~~ Koehl
in PM.

Met Mary Kay Dalton + Mary ~~Anne~~ ... at
Marina - over for Evening + Stay over Nite.

17 July 77
Sun

- Fishing w folks in afternoon - Caught
3 sand sharks + 1 Keeper
Supper at our place - No working

18 July 77
Mon.

Folks left at 10 Am Ferry.

Spec 9.1 + 152 + 153 ?

Put samples of Bouin Fixed stuff in HF 3% at ~ 11:15 pm

Filtering paraffin

Looked at Larvae - essentially 100 % settled in glass + Polyethylene dishes - in clumps + as individuals.

Embedded but some crystallization occured - Probably ruin the tissue but went through anyway - Fully HF treated

77-7-9.1 4 pcs - 3 pcs Not decalcified

19 July - 77
Tues.

Library search for Aplysiacallista

Worked in Lab = cleaning up stuff - identified specimens from Fishermans Bay

P.M. took family for a dive to Pt Cerse for snorkel for Abalone, etc

20 July 77
Wed

Put up dry specimens for mailing.

Test HF on Aplysiacallista Pale - spec 77-7-9.2 of lab fixed Form specs - poor specs -

HF fixed seven specimens - Start HF 30% in tap water at 11:35 Am. by 1 hr 20 min all dissolved - 12:55 pm

So started a 2nd att at 1:13 pm

13 min ~ 50% of silica gone.

25 min all silica Gone - Complete

So saved the other Punch Pieces of 77-7-9.2 Lab-Fix-Poor for Comparison w Good Fix - 4 punched desilic 3% HF 30 min + to 50 ROH → 80% ROH Final + Sealed.

Larvae -

c) - Plastic bowl - final settlers - some OK - many w ciliate attacks + these rounded up as if regeneration bodies. Cleaned out the bowl - disposed of larvae.

A) First bowl - of settled larvae - doing very well - most are Fully Functional w 1 or 2 oscula + 100 - 200 chambers - Nice + Growing

B) Bowl B most also doing fairly well - glass even though many adherant ~~sp~~ larvae settled here. Not quite to stage of bowl A but going good!

Fix Depth Gauge
Ready for Dive tomorrow
Fishing in Erie w Jenny. - Nothing.

21 July 1977.

1. Wrote Gary Silver letter to advise possible visit to Victoria on 5th Aug or return trip
2. Got camera ready for Close-up - Short Tube, flash low power
   EKTch 64 20Ex - will be Roll 3 of the trip.

3. to Reef to catch plankton - wind + waves up - Poor for this.

4. Looked at + Scored the grafts - worked Better than I expected: (Started 5 July 77.
   1. Blue^1 x Red^1 - reject! clear
   2. Blue^1 x Red^2 Eaten off Red - No contact
   3. Blue^2 x Red^1 reject! clear
   4. Blue^2 x Red^2 reject! clear
   * 5. Red^1 x Red^1 Acceptance + FUSION Contact.

The procedure of hanging from cross rope worked VERY WELL
Sponges are happy + healthy! Most "Blue's" w Big Advanced Larvae.
Most 'Red's w little stage 1 eggs. All information strengthens
settling species pair here.

Done Cactus Island w Charlie Eaton - Start Roll 3
Search for Hexact:
Done 3.00 pm to 100' pressure 2500 start -
End 3.25 pm start up - End at 3:30 w 600 PSI

* 77-7-21.1 dry Ektron ✓ No Hexacts seen - mostly at 90' + cobble bottom w rocks + many ~~Seals~~ Dophin at start - then several Tetilla (Not SAVED) spheres - collected one of each.

for drying - No Hepacts.
At ~ end of dive Charlie gives the "No Air" sign - me buddy breaths on the wrong side - Get up & Charlie is out of it - gas in gut finally out & all OK - but scarry for a while.

Took ~ 5-6 pictures.

Eve - Walk to Heaven after Supper
Later - Nite life - squids & octopus babies.

---

22 July 77
- Clean up & turn in Equip

23rd Left for Oakland

Arrive back in Sydney B.C. on Vancouver on 6th Aug 77

−123.54°W
+ 48.546°N = Elbow Pt = Repulse RK

7 August 1977

Dove in Saanich Inlet w [Gary Silver, Deborah Silver, Ken ..... (?)] on Speedboat from Ken's cabin portage

In: 12:40 pm @ 250 psi

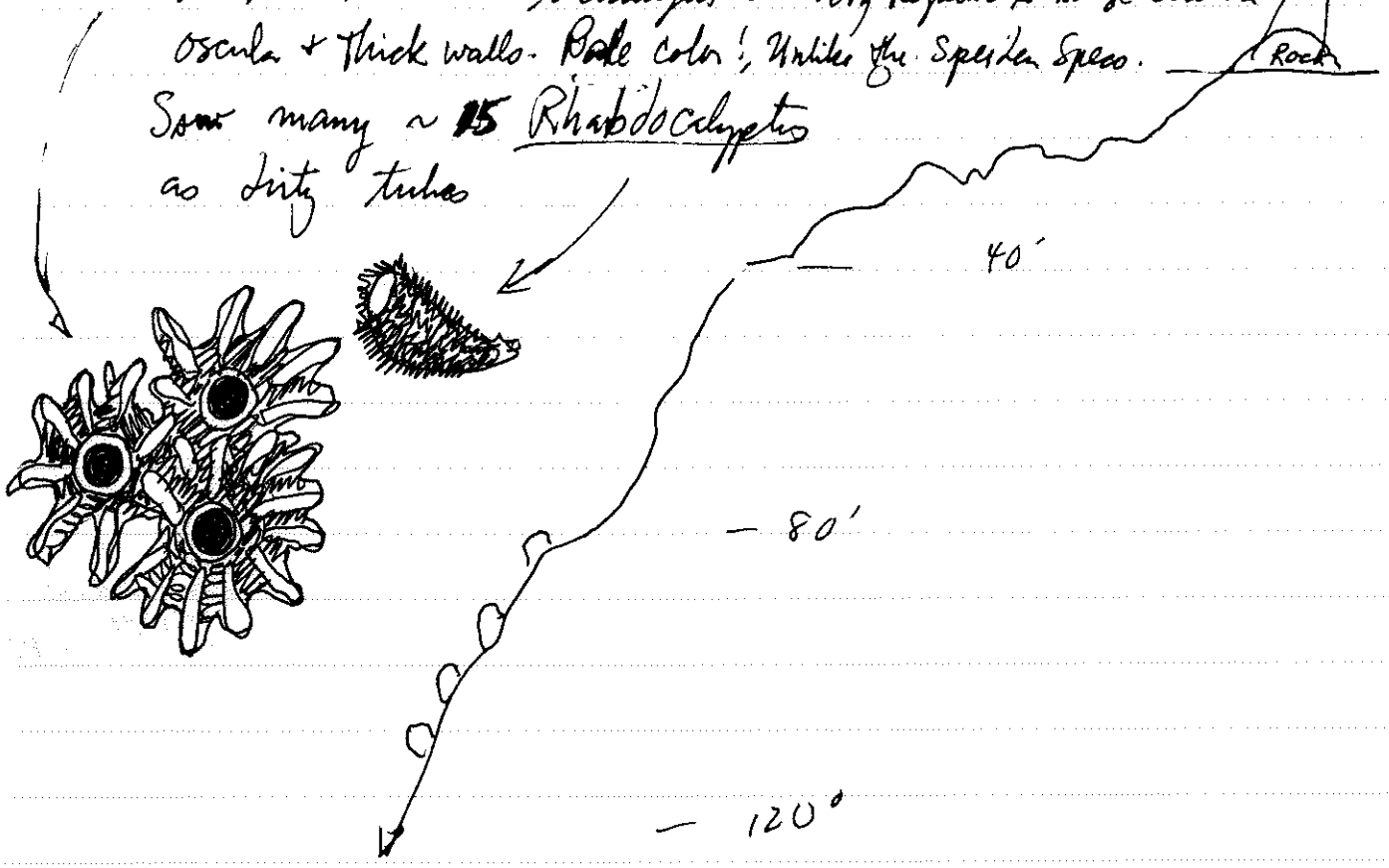
Dove to max 120 feet + Time at 15 min Bottom time - out at 100 psi, 1,050 psi

Collected Tissue Samples of Aphrocallistes vastus at 85' = 26 m

Took 3 small cores for small Syringe > 3% Glutaraldehyde
5 cores for big Syringe Fix in Cacodylate
8 Total cores # 77-8-7.1 all from 1 spec.

Saw about 50 specimens between 80 + 120' with 40' visibility at the bottom - beautiful! - Very Regular w large circular oscula + thick walls. Pale color; Unlike the Speciden Speco.

Saw many ~ 15 Rhabdocalyptus as dirty tubes



No specimens of Chondrosia Calyx seen - Carg eggs similar to A. viridens.

Surveyed shallower waters on way up - Ptilosarcus plu, many other sponge species seen but none as large as Aplysinella strongylata - typically 2' across x 10' between specs on wall & very regular arrangement of folds radiating from oscula. Ceriantheus in 40' of water

Surfaced at 1:00 pm w 1000 p.s.i.

Went down to the end of the inlet arm to collect crabs for supper but none seen - but eel grass full of gastropods + eggs - millions of them Haminoea virescens

Retr to camp at 5 pm at Sattlip + processed samples w cold to 50% ROH. [So Let Fix was for 4 hrs in warm condition]

Final processing at Montreal:

17 Aug 1977

Collected FW sponge in Brooks Lake at Ontario park "Samuel D. Champlain Parke" 8 mi west of Matawa on Trans Canada 17 Lots + Lots of Big eggs: green exposed + white under rocks at exit of Lake at rapids edge.

77-8-17.1 dry.

77-8-17.2 dry.

H. M. Reiswig

FRI. HBR. Lab. - Visitor
(Department/Affiliation)

#	Date	Name of Partner	Location of Dive	Max. Depth	Bottom Time	Purpose of Dive	Comments
1	1 July 77	Tom Schopf	Pt George	50'	35 min	Collect Benthic Sample	OK; Calm 10' visib
2	4 July 77	Tom Schopf	Mineral pt. ½ way to Spartan Channel	45'	35 min	Collect Benthic Specs. + photography.	OK; Calm 8' visib.
3	6 July 77	Tom Schopf	Cantelever pier	100'	18 m	Collect benthos + photog.	OK; Calm 10' visib
4	8 July 77	Tom Schopf	Shady Cove	100'	15 m	Collect spec + photography	OK; mod Swell 8' visib
5	9 July 77	Thomas Schopf	Sentinal Island	100'	18 min	Collect Sponge Tissue	Great 10' swell, 10' visib
6	9 July 77	Thomas Schopf	Henry Island	100'	14 min	Survey Benthos	OK 10' visibility
7	13 July 77	Thomas Schopf	Fisherman Bay, Lopez Is S.W. corner	15'	20 min	Survey Benthos	Mud-grass bottom; 5' visi
8	13 July 77	Thomas Schopf	Fishermans Bay, Lopez Is middle	20'	20 min	Survey Benthos	Mud-sand bottom; 10' visib
9	13 July 77	Thomas Schopf	Fishermans Bay, Lopez Is channel	20'	20 min	Survey Benthos.	Mixed bottom, 15' visib
10	13 July 77	Thomas Schopf	Turn Island	100'	20 min	Survey Benthos	Cliffwalls; 12' visib
11	15 July 77	Thomas Schopf	Sentinal Island	100'	20 min	Collect + Photograph sponges	heavy currents - OK
12	15 July 77	Thomas Schopf	Henry Island	80'	15 min	Collect + Photograph Benthos	heavy currents - OK
13	16 July 77	Thomas Schopf.	Cantelever Pier	80'	25 min	Survey Benthos + install racks.	Rain, Cold. Good Dive.
14	21 July 77	Charlie Eaton	Cactus Island	100'	25 min	Search for Hexact	Calm, Sunny heavy current at end

Leslie

Lab — Jeremy Wendly

Tom Montgomery

Tony Wong.

Liz Sides

Staff — Bob Trench

Bob Stanecki - Algae

Jeremy Jackson

Larrie & Cathy Hammond. Hector Holarthur.

Malcom Telford.

Dave King - UWI & former Class

1978
July

JAMAICA 1978

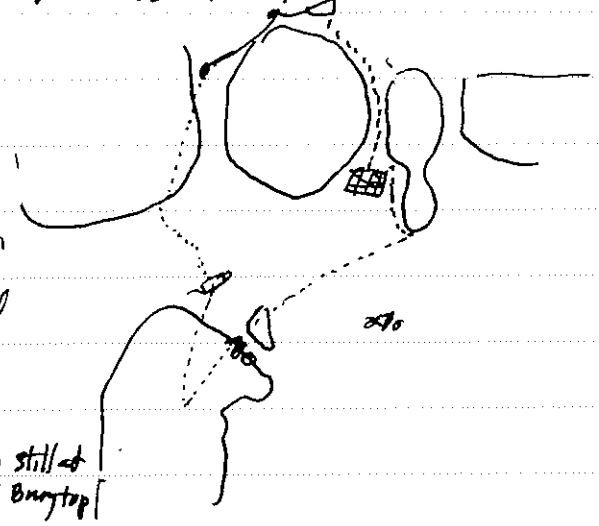
8 Sat 8 July
Flew Air Canada – Mirabel (Montreal) → Toronto → Montego Bay
AIR Freight to Come – 3 Boxes
Met Jeremy Woodley at Airport.
Snorkeled Shallow Reef

9 Sunday – Snorkel Shallow Reef → Outside
PM – Boat to ~~Fal~~ Bay – Snorkel shallow Reef
Walk to Town + Back – Old lab Site

10 Monday – got Lift to P.O. + Bank + Store
Dive AM w Tom Montgomery Check out – TANKS Used. Lecture Eve by Bob Trench
Zooxanthellae

11. Tuesday – Dive Lloyd + Chris to the Buoy back Reef area to survey the transect to see the area –

Noted:
Teardrop
Anthosigmella varians
Chiona deletrix
~~Pseudo~~ sp grey Coral Killer
Mycale all over scaffold at Teardrop channel.
Spheciospongia + Xestospongia + } still at Buoytop
old Geodia neptuni sponges



Noted also YLs largely gone from the reef as visible
Drum still there + population changes obvious
2 Strombus laying eggs after presumed mating

strands w sand cover

1978
July
11 Afternoon hatched at eggs - 2 cell stage Strombus Dive Snorkel Tethya site

Evening - Read + work on cameras.

---

12 Wednesday.
Walk to town - pick up batteries, to store, P.O. + back.
Read + prepared lectures

Eve start Lect.

---

13 Thursday - class work
Dive AM to EFReef - 50' class - collect spg for ID tutsfic.
Working Lab - Lecture, Sponge IDs

---

14 Fri AM - Dive Class 60' to grafts, Lect
PM - dive Tethyas 10' - Lay out Transects - Tank dive 90 min
OK. Red Stage inflatable Bad! Spec: Placospongia 78-7-14.1

---

15 Dive No Class EFReef ~60' Lloyds camera flooded Argeh.

---

16 AM Dive EFReef survey for Symbiosis Assns + Killers
L. Crocker - long swim
2 Lects Sponge phylogeny - Fighting
PM Columbus Park Dive 60' Survey - H_2O wells - 2 counters
See Species List → over - 2 spec →
Strombus starting to Hatch

---

17. AM - Dive EFR - Water Current Tubes in Class 78-7-17.1
Lect: Boring Sponge + Repro Patterns
LC + DH collected Columbus Park: Gellioids + Mycale BC-2 MUSSPEC
PM - Lab Pore larvae: Gellioids not ripe; Hymeniacidon
OK. Many Strombus Hatching Velgers.

1978

July 18 Dive AM EFR 50' Collect Grafts Class

Survey For Boring Sponge -

Lects - Sponge Evaluation - General Ecology

Lab - Score Grafts - general Lab

Siphonodictyon brevitubulatum

78-7-18.1 2 pcs

78-7-18.2

Anthosigmella varians

78-7-13.1 Anthosigmella v.

78-7-13.2 Dysidea janis

78-7-13.3 Callyspongia procumbens

78-7-13.4 Erylus formosus

78-7-13.5 Callyspongia armigera

78-7-13.6 Cinachyra ball

78-7-13.7 Ptilocaulis

78-7-13.8 (Red Dot) Hymeniacidon

Laboratory Grafts - Verongia longissima

+ = Fusion
− = Rejection

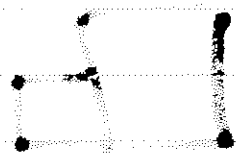
Strain	1	2	3	4	5	6
A	+					
B	−	+				
C	−	−	+			
C	−	−	+	+		
D	−	−	−	−	+	
E	−	−	−	−	−	+

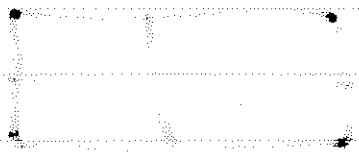
Field Grafts

Graftee Source

Strain	1	2	3	4	5	6
A Graft	+	−	−	−	−	−
B Host	−	+	−	−	−	−
C	−	−	+	+	−	−
C	−	−	+	+	−	−
D	−	−	−	−	+	−
E	−	−	−	−	−	+

Petit Polyepoxy Underwater patching Cmpd





Samples pres for Bact analysis

~~Alphabetical~~ Plus deeper

E.F. Reef 50' Porifera Identification List: Course 1978

(1)	1	• Xestospongia muta
(15)	2	• Verongia fistularis (yellow tube)
(26)	3	• Agelas schmidti (tan tube)
(4)	4	• Verongia longissima (purple rope)
(5)	5	• Haliclona rubens (red rope)
(11)	6	• Agelas sceptrum = conifera ?(wiedenmayer) orange Rope also Red Burn.
(3)	7	• Iotrochota birotulata Green Rope.
(7)	8	• Neofibularia nolitangere
(61)	9	• Cliona delitrix
(see cp 41)	10	• Mycale laevis
(6) (65)	11	• Verongia gigantea (B) (Green olive funnel
(see cp. 45)	12	• Mycale sp (Blood Cup) - common below 60'
(25)	13	• Ircinia strobilina Normal
(23)	14	• Spongia sp green prickle spg
(13)	15	• Hemectyon ferox
(10)	16	• Agelas clathrodes =(dispar Wiedenmayer) brown plate
(9)	17	• Aplysina Cyathina = ~~N~~ digitata wiedenmayer fringe funnel
(36) BN (37) BLK (53) TAN	18 (55) BN	• Plakortis zygompha (blade) A; (brown) B ← rare in shallows! Deep only
	~~19~~	~~• Callyspongia vaginalis~~
(27)	20	• Ianthella ianthella (A) purple tube typical
(34)	21	• Ptilocaulis spiculifera ? red Knobby dry
(19)	22	• Cinachyra alloclada orange ball
(16)	23	• Anthosigmella varians
(24)	24	• Callyspongia plicifera elastic tube
(38)	25	• Geodia neptuni - small encrusty
(17)	26	• ~~Xestospongia~~ Cribrochalina vasculum red ~~plate~~ funnel w growth lines

E Fore Reef

(14)	27	• Hymeniacidon sp	dark brown soft pillows
	28	• cf ~~Reniera~~ ? sp	Thin purple Keller
(63)	29	• Cliona langae	black orange boring
	30	• Cliona aprica	brown - thin orange coral
	31	• Siphonodictyon brevitubulatum	- yellow tube boring
(2)	32	• Erylus formosus	- small tube-mass - grey dark surface Scale
(58)	33	• Dysidea fania	algal plant sponge
(21)	34	• Ulosa reutzleri	orange encrusting
(8)	35	• Callyspongia armigera	spikey stick
(see CP. 44)	36	• Callyspongia procumbens	coral algae
	37	• ~~Dysidella~~ (Aiolocleroia)(E) crassa	Rio Bocas only? large ostia
(18)	38	• Fascispongia sp	
(32)	39	• Chondrilla nucula ? sp B.	~~orange~~ Olive green encrusting - Kills Slime
(28)(68)	40	? Hymeniacidon ? sp	Red Soft Sponge - Fast Reactor
(20)	41	•	fuzzy lean sponge - epizoic sponge
(see CP 50)	42	• Desmapsamma anchorata	rare.
(29)	43	• Ircinia sp	White Ircinia - Coarse
(30)	44	• Ircinia sp	Black jet Ircinia Coarse
	45	• Cliona schmidti	Purple color Borer
(12)	46	• Thalysesurypon conulosa Hechtel = Pandaros acanthifolium Wiedenmayer	dark wiery red, (Black at depth Crunchy conulose, hemorrhagic
(22)	47	? "Axinellid"	orange filled rope. ~~Axinella~~ Tubular channel
(31)	48	• Ianthella(C)	Yellow Tubes thin to small purple patches
(33)	49	• Axocielita sp?	Black Gorgonian encrusting w/ zoanthids
(35)	50	• Xestospongia red plate	No growth lines - Smooth
(62)	51	•	brown hollow cigar spg
(39)	52	• Verongia archeri	Purple trumpet Jelly
(57)	53	• ~~Chondrosia~~ ? Oscarella!	Brown ~~Rubber Blastic~~ Network spg

E Fore Reef

54 · Axociella of Calla del 1934 Red encrusts on Gorgo.

(69) 55 · Dirty finger sponge 

(64) 56 · Verongia gigantea (A) mine 

(66) 57 · Verongia gigantea (C) reticulate green 

(60) 58 · Agelas (dispar?) orange massive to plated w grooves 

59 · Ianthella (B) = ianthella purple tubes - large 

(59) 60 · Ianthella (D) Orang tan masses 

61

62

63

64

65 · Fallolina peltata (not seen this trip)

66 · Stromatospongia verrucicola

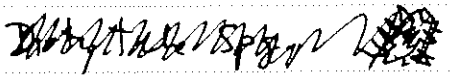
Additions Deep water (56) 67 · Ceratopsella michaloni

(51) 68 · Ianthella(F) thin blue hollow branchy rope

(52) 69 · ~~Pseudaxinella~~ Terchaxinella marshella orange flat-encrusted w zanth

(54) 70 · Pseudaxinella lunaechanta Drab Tan-gray inside Agelas Fragilina spp 

71 · Plakortis orange tropical sponge spp

72 · Stromatospongia norvicae 

73 · ~~Dis~~pongiaetra miniana

74 · Corrieniella auricula

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Columbus Park List

1 · Verongia fistularis yellow tubes

2 · Haliclona rubens common

3 · Iotrochota birotulata - common around walls - massive zoanthid pops

(42) 4 · Gelliodes areolata

5 · Neofibularia nolitangere

6 · Cliona delitrix w zoanthids usually

(41) 7 · Mycale laevis

(45) 8 · Mycale sp red cups

9 · Ircinia strobilina

10 · Ircinia sp - white

(49)? 11 · Ircinia fasciculata

12 · Gelliodes cyathina (plate + fan + funnel form) w zoanth
= Niphates digitata?

13 · Ciniachyra alloclada

14 · Callyspongia ~~fallax~~ armigera = fallax

15 · Anthosigmella varians

(40) 16 · ~~Spheciospongia vesparia~~ w zoanthids

(50) 17 · Dermapoamma anchorata - common

18 · Ulosa reutzleri orange

19 · Ptilocaulis spiculifer common - red

20 · Placospongia melobesioides - brown plate sponge

21 · Haliclona viridis green creeper

(48) 22 · Verongia lacunosa convoluted, firm tube

~~23~~ ~~Verongia~~ sp reticulate sponge, green

(44) 23 ~~24~~ · Callyspongia procumbens

24 ~~25~~ · Cliona langae

25 ~~26~~ · Dysidea janca

26 ~~27~~ · Plakortis simplex? or Zygomphia? Color brn

27 ~~28~~ • Callyspongia vaginalis (rept LAC)

(43) 28 ~~29~~ • green encrusting haliclonid – see 'd' on 29 July = Chondrilla "d"

(46) 29 ~~30~~ • Leucetta sp big spicule grey-blue Calcinea

(47) 30 31 • Tedania cf ignis orange dirty black spg

see (54) PR 31 ~~32~~ • Pseudaxinella lunaecharta orange hispid encrustin w zoanthids

32 ~~33~~ • Teichaxinella morchella orange bush spg (w zoanthid on Otaria Reef)

33 ~~34~~ • Utosa hispida orange – hispid surface encrustn

34 ~~35~~ • Verongia sp small finger sponge

35 ~~36~~ • Spirastrella coccinea

36 ~~37~~ • Ptilocaulis sp encrusting

37 ~~38~~ • Adocia Carbonaria

38 ~~39~~ • Acarnus sp upright orange bush

39 ~~43~~ • ? cf Tedania orange stringy spg.

40 ~~41~~ • Timea sp massive orange w spicule plumes

41 ~~42~~ • Agelas sp orange red (rope?)

42 ~~43~~ • Verongia gigantea C green reticulate

43

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~~52~~

~~53~~

Discovery Bay Shallows List

(67)

1 · Tethya crypta

2 · Ectyodoryta birotulata

3 · Ircinia strobilina

4 · Placospongia melobesioides flat + massive

5 · Callyspongia aerizusa Purple + ~~Green~~ rope with

~~6 Callyspongia cyathina a green fan-shaped~~

6 · Haliclona viridis

7 · Desmapsamma anchorata

8 · Mycale laevis

9 · Adocia carbonaria

10 · Haliclona rubens

11 · Chondrilla nucula Form A Chicken liver brown & Form B Olive Green encrusting

12 · Spheciospongia vesparia massive + burrowing forms

~~13 Ircinia Strobilina~~

13 · Ircinia sp brown fasciculata? corallas ~ 5 mm apt; osc H/A

14 · Ircinia sp brown very finely corallas ~ 1 mm or less apt. osc vole

15 · Anthosigmella varians burrowing + tower

16 · ~~Thalysemnon~~ Callyspongia conulosa [Hechtel ES ~~Echinodictyum~~ Pandaros acanthifolium Red [Wiedenmayer 77] fronds - Coarse sl slimy sponge

17 · Ircinia fasciculata - grey 

18 · Clina langae

~~19 Ectyodoryta Birotulata~~

~~20~~ dupl.

19 · Callyspongia (Niphates) digitalis (cyathina) a) Green ~~grey~~ vase b) Purple vase

~~V Phakellia~~ (Axinellid) Teichaxinella morchella orange frondose Coarse sponge

21 · Tedania ignis - red-orange, thickly encrusting, tuberculate · smo

22 · Haliclona alcoria Light brown (tan) ramose w smooth surface osc distri

23 · Haliclona sp. Thickly encrusting Light blue purple grey - soft hint spinose looking surface

24. 25. • Spirasterella cunctatrix ——— 26 rusty color encrusting
25. 24. • Callyspongia procumbens
26 ~~29~~ • Lewcetta sp - in protected area -
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Identification attempts - EF Reef.

1). ~~"Harpios"~~ - need good preparation for test
grey-purple coral Killer ox eao

2.) Ulosa reutzleri

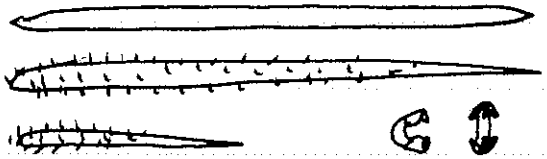
400 - 500 µm

3) Olive Killer spge

 asters only - Chondrilla nucula

4) Red dot spg.

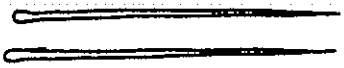
Hymedesmia ~~Hymedesmia~~ sp
similar to BAKUS species from FRI HAR



5) Fuzzy dear spg

need good prep - lots of "foreign" spicules

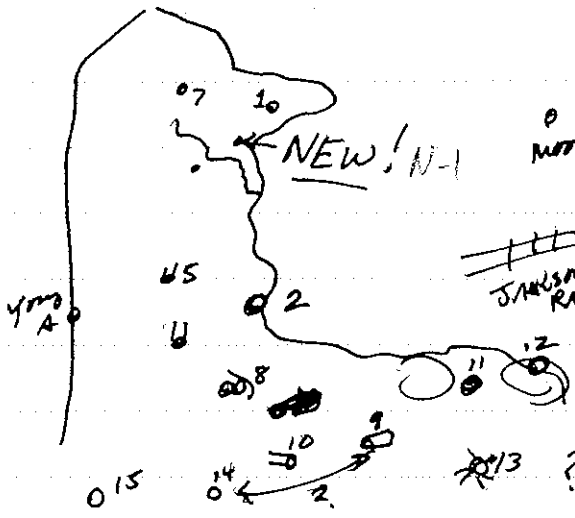
6) Ptilocaulis



1978

19 July - Wednesday -

Work on Camera + Flash Arm - Put together w 4-D Cells - will it seal?
Small Lab still no lights - Boxes From Montreal Not here Yet.
Start asbestos plates for Tethya Identification - Chris Pomfret
Dive 2pm - Buoy Reef. to 155' 15 min C Hawkins
L Crocker.
to survey YA spec:



1	-	gone X
2	-	gone X
5		gone X
6		gone X
8		gone X Azalea plate still there
9		Present!
10		Gone X
11		gone X
12		Gone X
13		Gone X
14		gone X
15		Present - on side
YA		present
C		gone

N-1 + new one at upper area -

Provisional Number N-1

To Photograph
9, 15, YA + NEW
3 of 14 left — Mortality High!

Saw plenty of Spheciospongia, Geodia, Agelas Ropes, BC's, etc

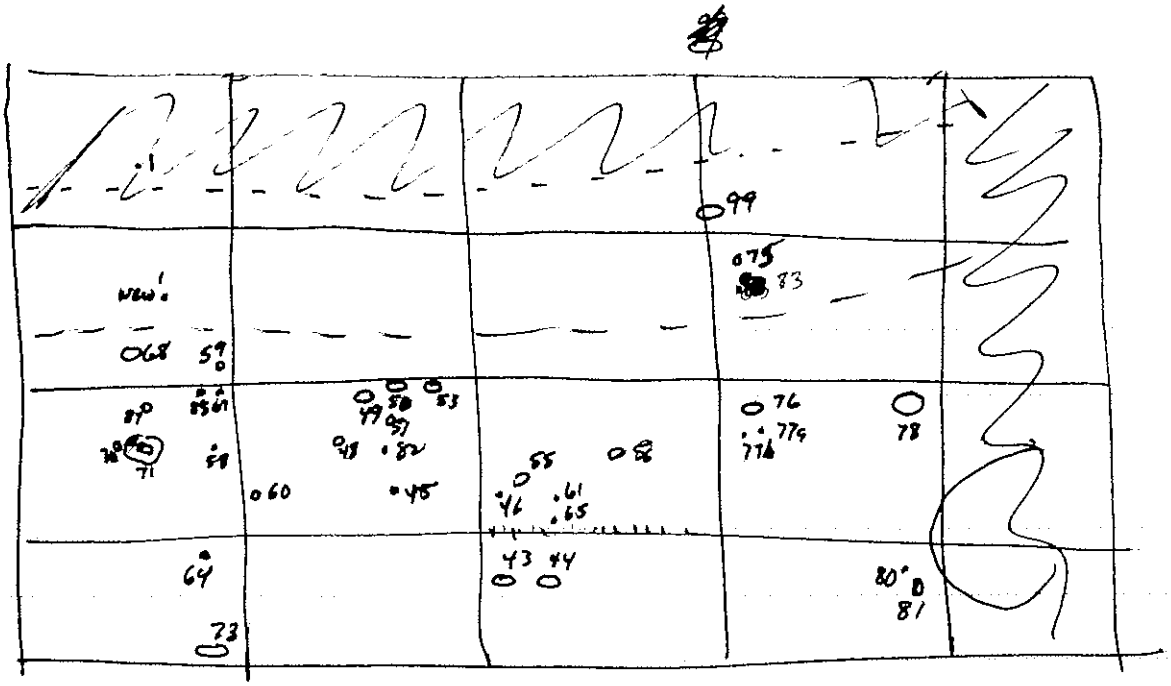
[redacted]

1978

20 July 1978 Thursday

Done Crypto spot - to search specs + set out #s

Found			Did Not Find
~~38~~	~~66~~	99.	42
43.	67.		47
44.	68.		52
45.	~~69~~		54
46.	70.		57
~~47~~	71.		62
48.	~~72~~		63
49.	73.		63A
50.	~~74~~.		66
51.	75.		69
~~52~~	76.		72 & 74 add.
53.	77a.		79
~~54~~	77b.		~~83~~
55 + a	78.		84
56.	~~79~~		86
~~57~~	80..		88
58.	81..		16 / 49
59.	~~82~~ 82 a b		
60.	~~83~~ 83 a k		
61.	~~84~~		+ one new one found
~~62~~	85.		gone # 1.
~~63~~ ~~63A~~	~~86~~		
64.	87.		
65.	~~88~~ / 33 / 49 + new 1 = 99		



Done — 2^{10} – 3^{10} 60 min 15 mi break w C Hankins
& L Crocker
3^{30} – 4^{30} 60 mi

Putting in Aspastro plates w orange Numbers for I.D.

1978

21 July Friday

Went to Ocho Rios for the day on Minibus - $1:20 Fare - Walked + swam there - shopped at Pineapple shopping area - straw market - then to Dunn's River for a great end to the afternoon. Back for Supper. Some little sunburn but OK.

—

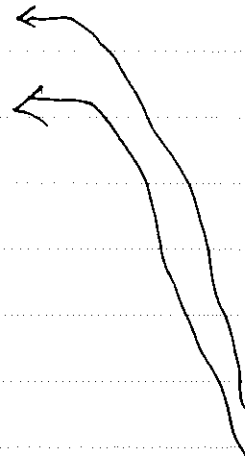
22 July : Saterday

Work on Velocity meter ala B+V - broke Probe - started

Dive 2 pm Crypt spot - Poor Visib!

Photo - mesome Transect sponges :

Spg #	Plus X Expsr	1/60 at 8 on 5.6 - 2 rolls.	
81	(1)	3 osc	26 x 19 x 8 cm
80	(2)	1 osc	6 x 7 x 3 cm
44	(3)	1 osc	14 x 15 x 9 cm
43	(4)	2 osc	18 x 15 x 9
73	(5)	2 osc	18 x 20 x 14
64	(6)	2 osc	15 x 16 x 13
71	(7)	? 5	30 x 25 x 8 atoll
70	(8)	1 osc	8 x 6 x 4
87	(9)	1 osc	10 x 10 x 6
85	(10)	1 osc	12 x 9 x 8
67	(11)	1 osc	11 x 9 x 7
59	(12)	1 osc	15 x 12 x 11

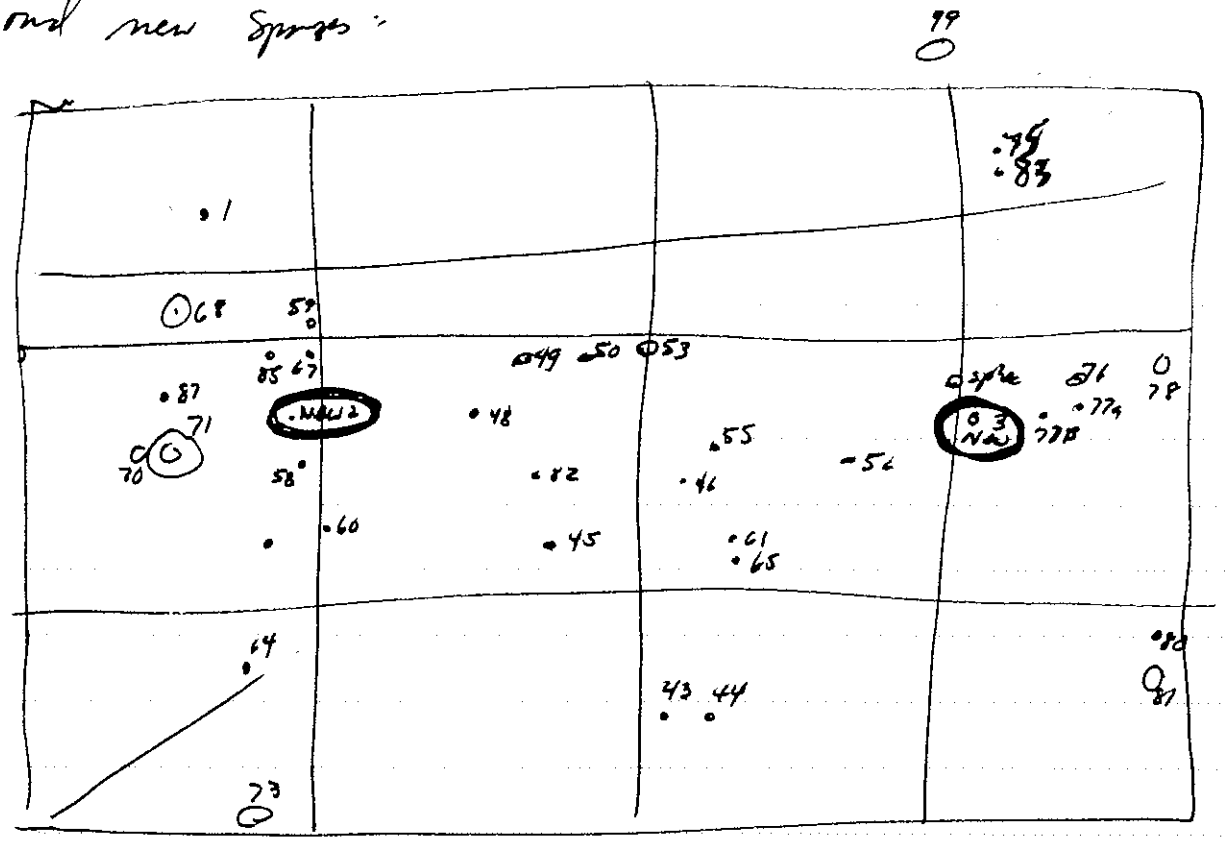


Spz #	Expsr	osc	dimension
58	13	1	10 x 11 x 5 cm
60	14	1	10 x 8 x 6
68	15	1	24 x 23 x 11
new 1 ?	16	1	10 x 8 x 4
50	17	L	20 x 15 x 15
51	18	1	17 x 14 x 11
49	19	?2	21 x 20 x 13
53	20	2	23 x 19 x 10
48	21	1	13 x 10 x 5
fam. 82a	22	1	9 x 7 x 5
fam. 82b	23	1	9 x 6 x 5
45	24	1	17 x 15 x 8
fam. 55	25	?1	19 x 10 x 7
fam. 55a	26	1	5 x 5 x 4
46	27	1	5 x 5 x 6
61	28	1	12 x 11 x 7
65	29	1	5 x 5 x 3
99	30	2	32 x 22 x 13
75	31	Roll2 1	?1 15 x 12 x 10
83	32	1	?11 x 8 x 6
76	3	2	15 x 13 x 7
77A	4	1	11 x 8 x 6
77B	5	1	11 x 10 x 6
56	6	~~3~~	19 x 16 x 8
87	7	3	26 x 20 x 7
80	8	1	7 x 7 x 4
78	9	3	30 x 26 x 10

Dmpl

Dmpl

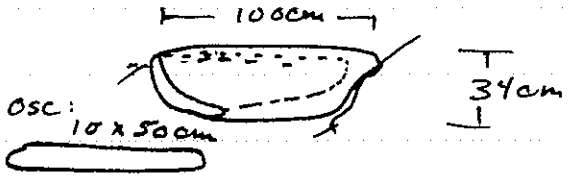
Final new Springs:



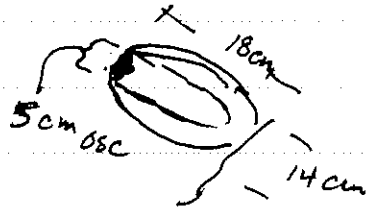
23 July Sunday - up 8:00 work on Current Probe (Alum Tube model - OK - completed - Good)
Fix up Camera for 10 Am Dive
Dive CMH, LAC at Buoy Mooring 2 to measure 42's

#9 - 1 photo taken Colony LAC — 86cm — healthy good but attached 5 Krumpy
145 feet Measure
Slide 2531

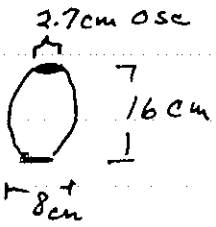
#15 - 150 feet



#42 ~135'



New ~105'



Meeting from 1:30 to 4 pm - Student Project
Worked on Stereo camera case - Epoxied the broken flash connector & installed - Done snorkel to Shallow reef w LAC at ~ 4:45 - Turbid & Turbulent Not good - Camera did not leak but stripped film!
N.C. - put Color onto Kodak & some at eq.
Slides 2544-2552

Eve hooked up current meter - No Go - drained batteries too greatly - To Try Lab power Supply.
— Eve —

24 July 1978 Monday

Put New Batteries into Flash.

Done 130 at Mooring #4 - Rough water w LAC + CMH

Max 120' 25 mi Survey Beautiful - took Nikonos Kodachrome 1/2 pwr 3' at 5.6 on Camera - about 6 went off.

Slides 2532 - 2543

Began dive Mooring #4 + swam E toward Buoy in Moat across front of Dancing Lady Reef, up over Zuizorro, + down in front of water tower -

YZ's 22, 23, 24, 25 etc all gone -

did see some others Not immediately recognizable as old ones - in front of Zuizorro Probably New N-2 YZ small ~ 20 x 15 cm Slide 2537

Probably YZ36 YZ med ~ 45 x 35 cm

Probably YZ37 YZ med ~ 45 x 25 cm

Noted extreme abundance of:

a) Large Sarthella Tube - dark Blue spec 78-7-24.1

b) Ageles brown Tubes

c) Geodia neptuni

d) Hemectyon

+ others - e) dusty finger sponge f) Chiona delitrix g) Ageles brown plate e) Xestospongia plate, f) Ageles Orange plate, g) Orange + Red mass Ageles h) Light Orange Ageles ropes, i) Myxilla BCs, j) Callyspongia plicifera, k) Verongia archeri, l) Callispongia cyathina, m) Haplosclerida, n) Plakortis blade, o) H. rubens p) Myxilla Lacunosa q) Anthosigmella varians, R) Spheciospongia vesparia s) Erylus formosus T) Xestospongia Red plate U) Tedania sic Ritteri

v) Siphonodictyon Cachacrouense
w) Ircinia sp white

25 July 1978 - Tuesday.

Call MoBay - No Boxes

Slides 2553 to -2571

Snorkeled in early AM to shallow reef - stereo photog - a Little leakage - (dry film.

Decided boxes were not going to Arrive - started plans to collect cores for Bacterial Symbiosis - for PM dive

Called Montreal 10:15 to search for Air Way Bill #.

Dive PM - LAC - EFore Reef - 50-60'

Collected samples by core for Bact analysis

78-12-18.4	1 Xestosp. mutc	7	Neofibularia	78-12-19.1
78-12-18.5	2 Erylus formosus	8	Callyspongia ~~fallax~~ (armigera)	78-12-19.2
78-12-18.6	3 Isotrochota	9	Oelliods cyathina = Niph. digitalis (LAC) ~~Agelas Reef (Orange)~~	78-12-19.3
78-12-18.7	4 Verongia longissima purple	10	Agelas Clathrodes Plate (Brown)	78-12-19.4
78-12-18.8	5 Haliclona rubens	11	Agelas sceptrum roper orange	78-12-19.5
78-12-18.9	6 Verongia gigantea Funnel	12	Thalysearypon → spec 78-7-25.1	

phaeo Thalysearypon spec ↑ for 12

b) Short Tube spec looks like Verongia (Hollow Cigar spg) 78-7-25.2

c) Red Dot spg

d) Anthosigmella

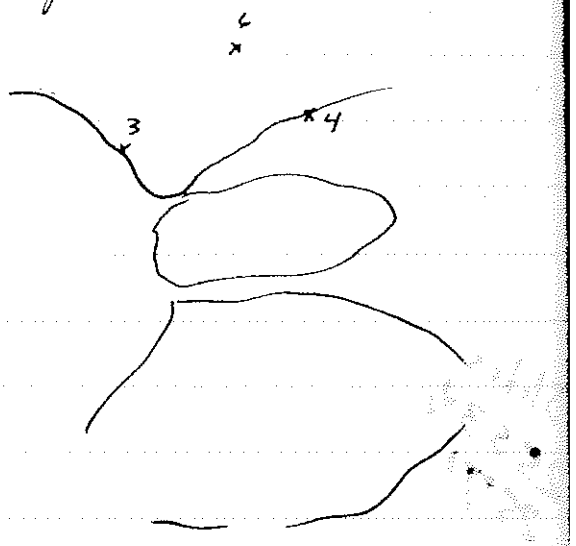
e) Hemiasterpon fenny to obt if it will spawn

25 July Evening

Dive ~7.10 LAC & CMH & EFR

1. placed Vernejin rope markers - brass disc for Spec #~~2~~, 3, 4, 6

2. Looked over Heneetyon + many closed - Not all



Drowned My Nikonos - Ghtl.

Night Spent cleaning camera

26 July

8:30 pm Dive EF Reef - CMH, LAC

1. to hunt Heneetyon Spawn - None Yet - (due 26th) NEG!
   Almost all were contracted & closed

2. Steiner camera w/flash - OK! No leakage
   Photo Spec + Divers. CMH held flash.
   5.6 at 1/50 Metz 1/2 PWR

Slides 2572-2577.

Must were White - Fan Overexpsd!

8. Work on Camera - Put in Cable connectors into Nikonos housing by drilling & Reaming - OK

Dive Afternoon -

1:30 pm - CMH at CF Reef in Water at 2:00pm -
Z 50' Time 55 min Total

1) Check for Hemectyon Spawn - Negative !!

2) Collect Boot samples:

day	Numbered				
1 →	13	Hemectyon ~~sp~~		core	78-12-17.6
2 →	14	Hymeniacidon sp	dark Brown	core	78-12-17.7
3 →	15	Verongia fistularis	Yellow - Grooved	core	78-12-17.8
4 →	16	Anthosigmella varians	chimney		78-12-17.9
5 →	17	Cribrochalina vasculum ~~Haliclona sp~~	red ~~plate~~ Funnel	with Growth line.	+ Spec 78-7-26.1
6 →	18	Fasciospongia sp			+ Spec 78-7-26.2
7 →	19	Orange Ball Cinachyra		spics	78-12-18.1
8 →	20	Fuzzy Lean Spg	purple fuzz		78-12-18.2
9 →	21	Ulosa ruetzleri	orange encrusta		78-12-18.3
10 →	22	Axinella	orange rope		+ spec 78-7-26.3
11 →	23	Green Spongia sp	Green, prickle spg		+ Spec 78-7-26.4

1978

July 27 July - Thursday

- Morning puttering around looking up sponge, etc

Dive 1:30 pm - deep EF Reef LAC, CMH, Sarah, Richard P, etc

Mooring Line Parted - Boat drifted ~ 1 mile before

All returned - down past Lab.

Brought in Mooring + then went back out

to EFR shallow mooring to dive 50'

Sample collection:

78-12-16.5	24 ← 1.	Callyspongia plicifera		
78-12-16.6	25 ← 2.	Ircinia strobilina - normal White stellate surface on brown dermis - Oscula in Line on top - Black		
78-12-16.7	26 ← 3.	Agelas Schmidti Tan tube		
78-12-16.8	27 ← 4.	Ianthella sp	short purple Tube set	
78-12-16.9	28 ← 5.	of Hymeniacidon Hymedesmia	Red dot spg	
78-12-17.1	29 ← 6.	Ircinia Strobilina sp	White - not stellate but crudely spirion - large ostia in fields; Oscula small	
78-12-17.2	30 ← 7.	Ircinia Strobilina sp	Black - like above w oscula in patches	
78-12-17.3	31 ← 8.	Ianthella sp -	Yellow stalky tubes w slight purple patches	
78-12-17.4	32 ← 9.	Chondrilla nucula form B -	dive green encrusting	78-7-27.2
	33 ← 10.	? Axocielita sp	black gorgonian encrusting	
78-12-17.5	34 ← 11.	Ptilocaulis Spiculifer	red bush spg	
	35 ← 12.	Xestospongia 78-7-27.1	Red plate. large w zoanthids	No Ann Lis

Color Roll - Photo:- Color slides Kodachrome 64 Meter at full power - Poor - Flash Not Directed straight

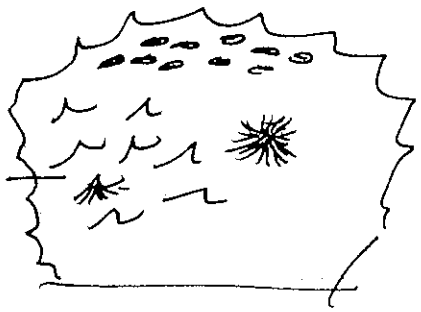
Slides 2578 - 2598 1/30 @ f8 - Most spp alone + Anthozoanella + Sponge

A Ircinia strobilina normal

color: grey - brown

↑ Stroll

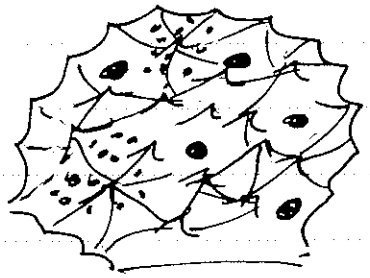
Microsc. small ostia radiate from conules



Oscula in groups on top - black
ostia microscopic, radiate from conules.

B Ircinia Strobilina sp 1

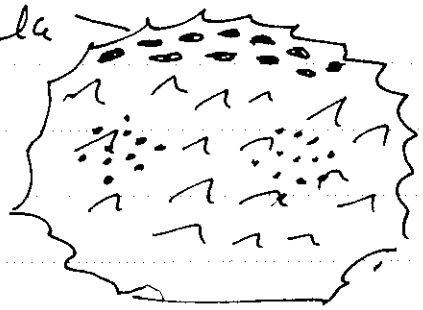
White
Ostia large in fields
Oscula scattered



C Ircinia sp 2

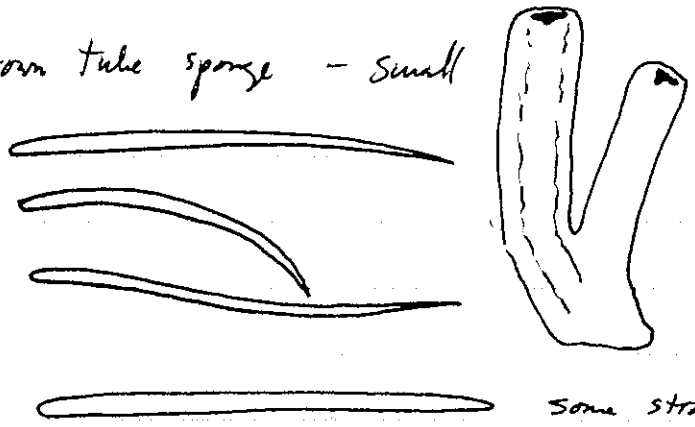
Black
Oscula in groups on top
Ostia Large & in fields

oscula



Looked for Hemectyon spawning — Negative

Brown tube sponge - small



hollow cigar sponge

See 78-7-25.2

some strongylose

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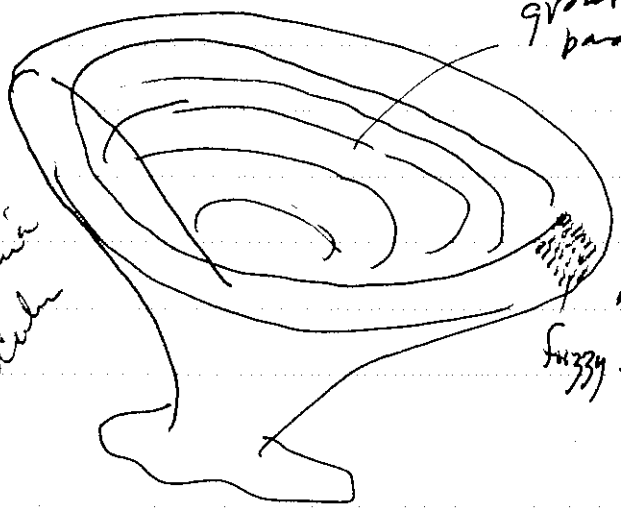
growth bands

Red funnel A



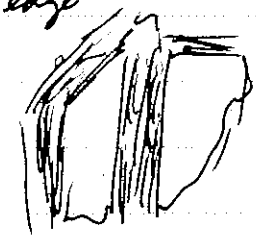
Cribrochalina vasculum

fuzzy edge

discontinuity?

growth bands.

2 sizes?



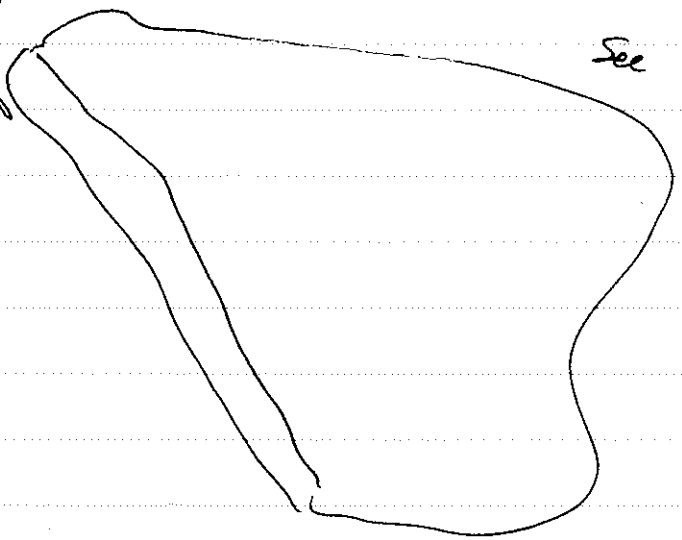
Plumispicular fibers

See 78-7-26.1

Red ~~Plate~~ B

See 78-7-27.1 w zoanthids

Xestospongia sp



Dense radiate fiber core

No growth bands.

Plumaspicular fibers

1978

28 July Friday Went to McBay – Messed around
Came back.

29 July Sat

Dive AM – 150' Pinnacle 1 w CMH, LAC – Jeremy Woodley.
15 min BT
15 min D.C.T.

Collected Tissue Samples:

36 – 1 – Plakortis brown 78-12-16.4
37 – 2 – Plakortis black w zoanthid New Species – Also spec. 78-12-16.3
38 – 3 – Geodia neptuni core 78-12-16.2
39 – 4 – Verongia archeri core 78-12-16.1

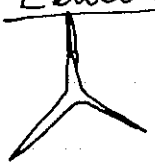
Dive P.M. Columbus park – collected 30–60'
~~Spheciospongia~~ 43 min BT + 10 min D.C.T.

40 – 1 – Spheciospongia vagabunda – w/o zoanth core 78-12-15.3
41 – 2 – Mycale laevis stick 78-12-15.4
42 – 3 – Gelliodes aerolita? (stick – blue) 78-12-15.5
43 – 4 – (see 'd' below) 78-7-29.2 green thick encrusting Chondrosia + spec w smallscale
44 – 5 – Callyspongia procumbens or armigera – (No spicules) 78-12-15.6
N.G.! (45) – 6 – Mycale sp. Blood Cup. (To use old tissue samples) Lost
46 – 7 – Leucetta sp 78-7-29.1 pondy blue gravel-spicule spg
47 – 8 – Tedania cf ignis 78-12-15.7 Orange dirty blob.
48 – 9 – Verongia cauliformis a 78-12-15.8
49 – 10 – Ircinia fasciculata 78-12-15.9 Brown a few large oscules
50 – 11 – Desmapsamma anchorata 78-12-15.2

+ several specimens / encrusters for I.D.s.

Specimens Collected Columbus Park 50'

A) Leucetta sp



Big Calc spicules

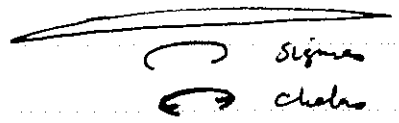
Sponge - light blue. ridged thickly encrusting

granular - like sand paper in cutting - Leucetta sp

(Hydroids # 7 + Boat set # 46 also dry spec

78-7-29.1

B) Desmapsamma anchorata 78-12-15.2



OK

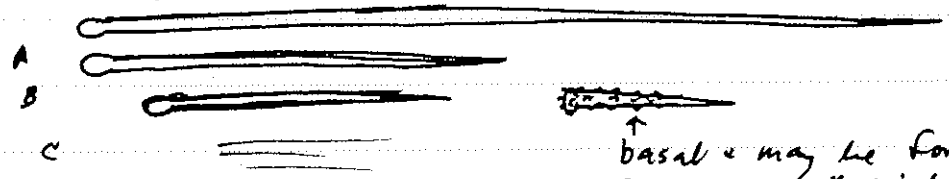
Boat set # 50

C) ?

Thin pink encrusta on bottle ~ 1mm thick

Astrorhizae + small oscula -

Pink surface like Desmapsamma + Schmen mounds



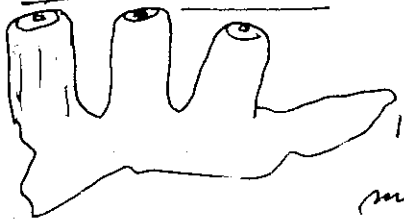
basal + may be foreign + an overgrowth victim.

Chondrilla sp ? d) ? ~~Halichondria~~ - green brown encrusta

Encrusting to 10 mm thick - green in situ but darker - olive Brown-green at surface - small scattered oscula - looks like a Halichlona at depth but Slightly compliant - soft. Very common

No spicules, No proper fibers - column of sand Support canals - are these fibers? Boat spec # 43 — Dry Spec 78-7-

e) Dysidea jania



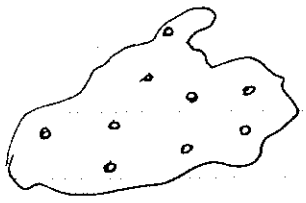
Soft tubular spg ~ 8-12 mm diam
like Dysidea jania but not so white -
more bluish at depth — purple in lab.

~~Bizzie~~

---

f) Agelas sp disp[n]?

bright orange — massive to repent
~ 5mm oscula + smooth surface — clean
Tough - Agelas-like but no open grooves
on living surface. In lab surface collapses to show deep Agelas pits
& incurrent cribbles.



spec 78-7-29.3

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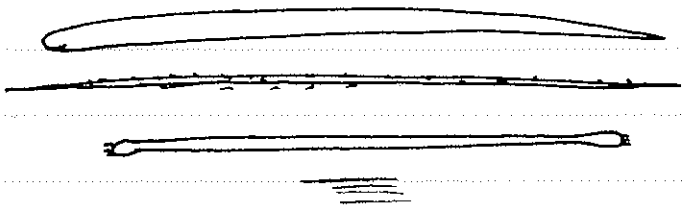
g) Tedania cf ignis but very soft - see also Wiedenmayer records such specs.
Orange dirty blob sponge - common at Columbus Park
but heavily sediment covered - usually only see orange oscula
sticking out - massive thick to 10 cm - Cake like -
In lab convoluted surface when free of sed - soft & friable

78-7-29.4



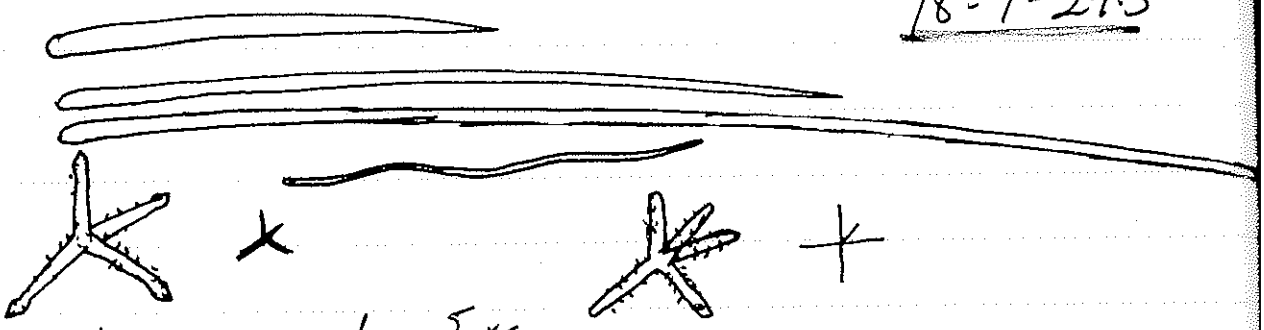
Main
spicul
dermal
small raphides

Nor skin reaction!

h.) of Timea sp.

Orange - massive - ridged & convolute groove surface - soft - Not very firm; fragile; long spicules from ends of projections - hirsute - hispid easy to see w naked eye.

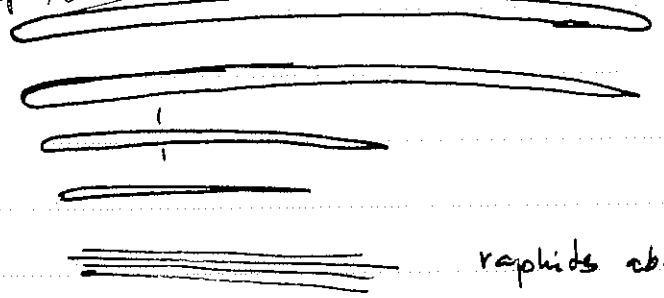
78-7-29.5

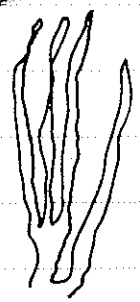


4 ray - a few 5 ray

I of Tedania

78-7-29.6



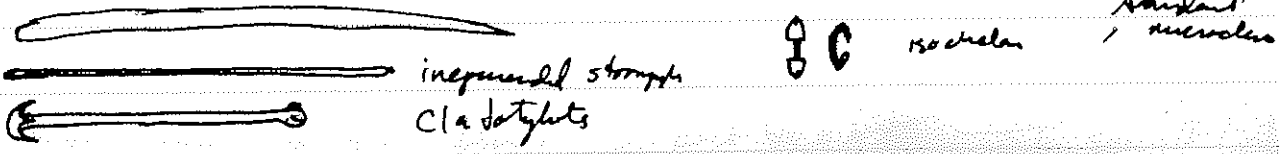


Orange, thin, rope or hair sponge - STRING Sponge ~2-3 mm diam - rather soft & floppy but tough for its size & shape.

J. Acarnus sp

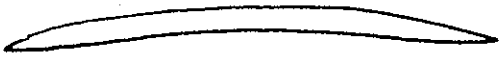
78-7-29.7

Orange - irreg surface - upright like Ptilocaulis but retracted in lab contracted to massive surface -

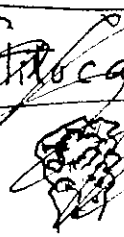


K. Aaptos carbonaria

blade smooth surface encrusts to 1 cm thick



L. Ptilocaulis



red orange - almost axinellid - like rough rufose surface

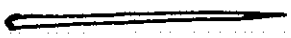
L. Ptilocaulis encrusting sp.

Thin red encrusting sponge - rather pink at depth

very thin ~ 1 mm w medium sized astrorhizal exhalant system to mod sized oscula

Spicules all small Styles - to subtylostyles

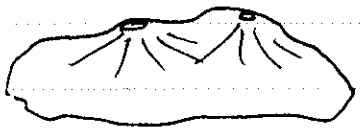
↳ Strongyles - Ophe Ptilocaulis.



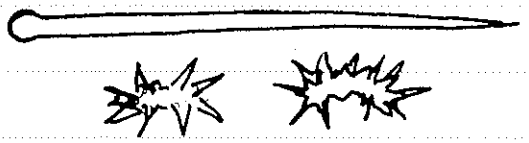
M. Spirastrella coccinea

tan with Orange - thick fleshy sponge

with large astrorhizae -



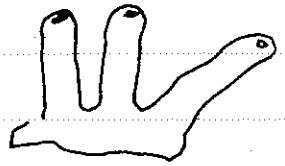
section



78-7-29.8

N B Verongia sp - Thin finger sponge - hollow reticulate skeleton

Yellow-gold color - not saved!

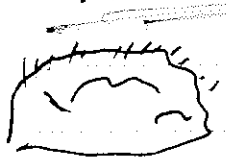


1978

O Ulosa hispida

Orange - hispid surface
50' Columbus park

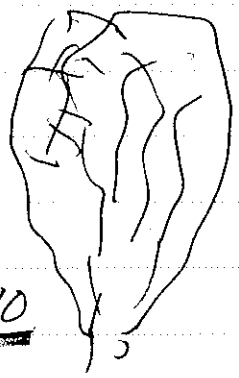
78-7-29.9



P Teichaxinella morchella

Orange - clavate - bushy -
Contract t series of 1 flat plates.

78-7-29.10



Q Pseudaxinella lunaecharta

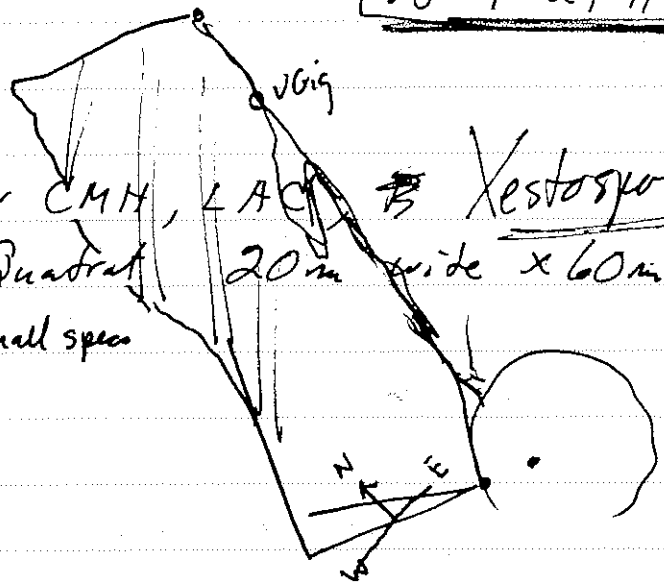
Vermillion red - finely comulose.
~ 3 mouthed Paraz, swifti

78-7-29.11

30 July San Asy

Dive EFR 50' w CMH, LACE & Xestospongia
Tag & Measure Quadrat 20m wide x 60m long
Tagged 32 specs + ~ 10 small specs
of ~ 1 liter Volume
also took Red Dot

Xestospongia



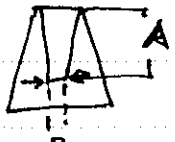
1978

30 July PM – worked on Spg Dilo from Yest'dy
Dove snorkel off Lab –

Anthozoanella varians } the 3 expected spp to
Haliclona viridis
Adocia carbonaria

under rocks all manner of Cerdia, Placospongia, etc.

31 July 78 Mon Am
Dive EFR at 50' w CMW, LAC, RP + 5



I measured Velocities of Xestospongia & C + L plotted in B&W & measured oscula. Vel

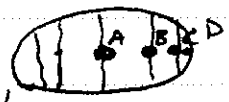
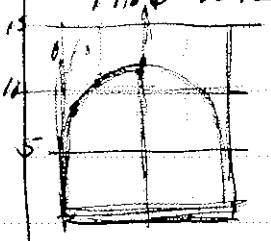
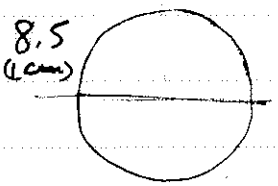


Photo Posit'n Roll order		D in cm	E in cm	C–C Osc diam	A – B Velocity – C → (D) in cm/sec			
1-1th	1)	39	5					
1-2th	2)	52	16	19 × 21	11.6	10.2	8.5 (1 cm)	
1-3th	3)	80	18					
1-4th	4)	56	15	25 × 29	9.5	8.5	7.4	5.0 (1 cm)



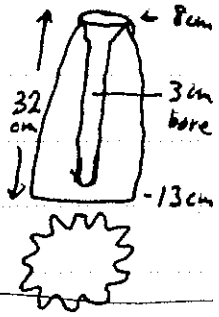


Roll Point		D	F	C-C OSC	Vel A	B	C	(D)
1 5th	5)	53	9	17 x 20	9.5	8.5	7.5 (11)	
1 6th	6)	54	6					
1 7th	7)	37	10					
1 8th	8)	38	15					
~~3 - 5th~~	9)	33	15					
1 - 11th	10)	24	14					
1 - 12th	11)	31	10					
1-9th	12)	45	15					

		D	EB	C-C Osc	Vel A B C (D)
1-10th	13)	47	13		
1-17th	14)	36	9		
1-13th	15)	37	14		
1-14th	16)	33	9		
1-15th	17)	41	5	13 x 13.5	9.0 7.0 6.0 (cm)
1-16th	18)	45	17		
2-1th	19)	44	19		
3-4th	20)	58	5	24 x 17	5.4 4.8 3.6 (1")
3-3th	21)	46-8		12 x 13.5	6.5 4.6 3.6 (1")

		D	E	C-C OSC	Vel A	B	C	(D)
3-2th	22)	17	10					
2-2th	23)	72	19	27 x 39	6.2	5.8	4.6	(1")
2-3th	24)	33	14					
2-4th w20Amplitude	25)	50	8	19 x 20	6.8	5.0	3.6	(1")
2-5th	26)	19	3					
2-6th	27)	57	10					
2-7th	28)	31	15					
3-1th	29)	35	16					
2-9th	30)	53	6	18.5 x 19.5	6.5	5.8	4.2	(1")

	D	*	E/B	C-C	Vel A	B	C	(D)
2-8th double 31)	43		5					
	43		5					
3-6th 32)	33		5					
Si (small meas)	25		2.5	5 x 6.5	13.8	9.0 (at 1/4)		



Totals

Smalls (9 more) Estimates ~ 1 liters

GT.

* GAMETE Release Rept - Sara Lewis - Gorgia Neptuni at ~60' on D.E.F. Reef 4:30pm one male spawning - SMOKE.
1978 EVENT 68 No Specimens or photos.
31 July
Nite - Dive Buoy deep Mooring - Max 100'
Close up Photos w Color 1/30 @ f 11-16 ½ Pwr Meter
Short Close up lens tube. Most Overexposed.
30 min dive in water at 12:30 AM (00 30) hrs

Slides 2599-2607

Many basket stars + brittle stars out -
Asteras massive orange species in lots of stars out the grooves, Justicia the small white common -

1 August 1978 - Tuesday Woke up late & went to town -
Dive 3:25 PM w CMH, LAC, Sara Lewis at EF Reef 50'
C+L finish photog B+W of Xestospongo -
I worked on Close-up photog of Red Dot spg B+W.
but lens not just right - many oof. f22 1/60 ½ pwr
Plus X develop Acufine - OK
Red Dot Not too reactive today - Depends upon stimulus
Some are fine - too much water must for good
Study - brought one in to Lab. 78-8-1.1
had Net spawning spg Oscarella on coral rubble.
Developed Film - OK See Back 57
Evening - looked at Red Dots in Lab - Most are contracted
but some have pore areas identifiable. None are
open in the small water table. Plakortes + its
Zoanthids (n. sp.) are out + expanded & active
tonight - 16 tentacle
Adjusted Lens focus of Nikonos 1

1978

2 August Wed - Burg

Deep dive AM 8:00 180' for 15 m dec: 2 m 30', 5 m 20', 10 m 10'
to observe & collect.

IN at 8:43 AM - 15 min BT - 23 min Decomp

Noted: 1. Zoanthids on blue branchy Ianthella 170'
2. Zoanthids on Orange Axinellid 155'
3. Zoanthids on Plakortis - Brown at 175'

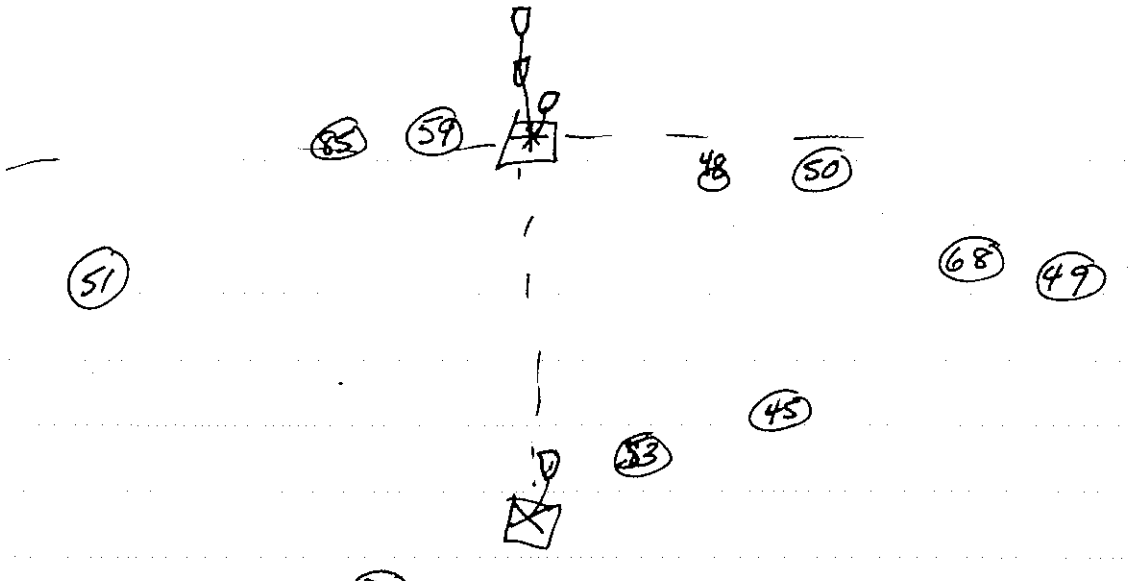
Collected. Ceratoporella - 2 sps - 78-8-2.7 + 2.8
Plakortis brown w zoanthids
blue branchy Ianthella w zoanth.
little Tan-gray blob ~~[illegible]~~ liver sps.
Orange encrusty (?) hispid sponge

Bact Samples

51	1.	Ianthella blue ramose	78-8-2.2
52	2.	Orange ~~Branching~~ Tetrachaxinella norchella w zoanthids Fromdrae Axinellid	78-8-2.6
53	3.	Soft Frog liver Aqua color sps → Plakortis sp.	78-8-2.3
54	4.	Orange hispid encrusta - Pseudaxinella ? Hymeraphia?	78-8-2.1
55	5.	Plakortis brown	78-12-15.1
56	6	Ceratoporella	78-8-2.4
57	* 7	~~Cinachyra~~? Brown Stringy Network sps Chr Oscarella from 50' E.F.R. Collected on 1 Aug 78 on Rock.	78-8-2.5

PM - Dive ~3:30 at Tethya spot

Mark #s on specs for wakeup - Not real Spec #s.



Scored at ~4pm Wed

45	1 osc	3/4 open
48	3 osc	3/4
49	2 osc	3/4
50	2 osc	1/4
51	5 osc	Full
53	1 osc	3/4
59	1 osc	Full
68	4 osc	3/4
82	2 osc	3/4
85	1 osc	1/2

3 Aug 18 Thurs - Dive 0545 to Tethyas

- AWAKE! They never went to sleep!

	45	48	49	50	51	53	59	68	82	85
Wed	● 3/4	●● 3/4	●. 3/4	·· (1/4)	●●● F	● 3/4	● F	●● 3/4	●. 3/4	● (1/2)

5:30

6:00 SAME AS 3:30 yesterday

6:30 No Sleep.

7:00

7:30

8:00

8:30

9:00

1978

3 Aug Cont'd Developed Pict - get ready for Dive.

PM - Dive Deep ℰ F Reef 60-70'
Photo Close up [BOTH TUBES] at 1/30 f22 Plus X
1/2 power flash Metz mostly Red Dot Gorg. Nice Fish
Noted good pano - Mixed well
8-11-21 & 25
8-12-1 to 24

Collected for Back Formali Fix + Dry
58 ← 1. Dysidea janai 78-8-3.2 ORIG
59 ← 2. Ianthella - 78-8-3.1 orange-Tan Mass (3)

also: Red Gorg encrusts 78-8-3.3

Black Gorg encrusts 78-8-3.4 Axocielita?

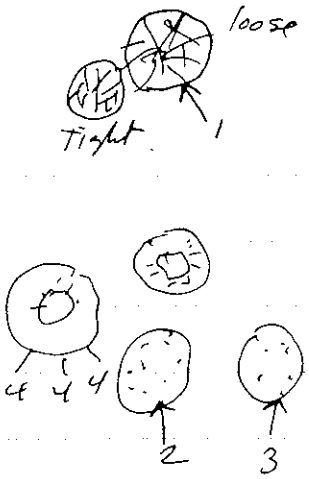
3 Aug

9:45 pm — Collected at ca 3:50 pm at DEFR.

Red Dot - Bellows at 3/8" from end.

Plus X + Sunpak Flash. 1/60 @ f. 8 (~~11~~)

Neg File ~~22 to 25~~



1. f 8
2. f 4

Poke at 1.

3 f 4
4 f 8

More

5 f 8
6 f 8

Poke at 2

7 f 8

Poke at 3 & 4

8 f 8

Neg 8-11-1 to 4

Neg 8-11-5 to 8

— Put back in water table. —

1978

4 Aug FRI

Dive CMH + LAC 700 Am DEFR. 75'

Collected for Bact + Spec

60 ← 1. Agelas — massive orange + convoluted — 78-8-4.1

61 ← 2. Cliona delitrix — 78-8-4.2

62 ← 3. ? — Cigar Sponge — 78-8-4.3

63 ← 4. Cliona lampa — brown w Zoanthids — 78-8-4.4

Also collected large specs of

64 ← 5. Verongia gigantea (A) massive — Fenestrate Lumps. — 78-8-4.5

65 ← 6. Verongia gigantea (B) thin-funnell — 78-8-4.6

66 ← 7. Verongia ~~gigantea~~ (C) Olive Green tube — Fenestrate (U) — 78-8-4.7

PM - Picked up Tags at Tetlya crypts site + collected a bact sample + spec from Outside Transect

*(67) ← 8 Tetlya crypts — 78-8-4.8

Spec mismarked in bag ~~64~~ 67 fixed this all right as (67)

Red Dots - several pieces — 78-8-4.9 dry

78-8-4.10 dry

~~78-8-4.11~~ dry

1978

4 Aug

Evening - 9 pm - Nite Dive w Lloyd ~ LTS - Reiswigs Reef
in 950 - out 1030 40 min at 80'

Slides 2608 - 2620 — Photog Color ASA 64 start 36 exposr Roll - Full Pwr 1/60 f 8

Subjects: Crabs, Agelas, Heteractyon, Cnidaclya, basket star, Homeomacidon, Lloyd against a gorgo, etc ~ 14 frames

Fine dive - good Phosphorescence

[I need a good Flashlight + Attachmt to Camera]

5 Aug 1978 Sat 80'

Dive CMH, LAC + DEFR - Not to the previous site but got to anchor site of Lab - Mooring gone.

Attempt stereo but Leaked - abandoned!

Noted Speciospongia, Geodias, Agelas huge, Neofibularia huge, (No Xestospongia), Oaus yellow xanthids on red-pink encrustation; Collected one red-dot & worked in lab - clamp collected & returned in bucket in pretty Fair shape - 78-8-5.1

Bract (68)

Also Dirty Finger Bpo - Bract 69 see below

Directly worked on it in Lab under D'scope

Copied notes over to here: Used metal needle (dissecting)

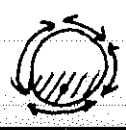
~9:30 AM [1]

Touch Contacts Noted as ●

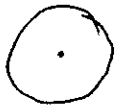
Pore disc

a) Touch at ● & get rapid contraction of local area 1/2 ± 1 mm opposite field not stimulated & pores in that area remain the same size as previous - relaxation after

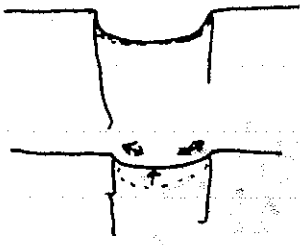
b) repeat - same result - pause



c) repeat - general margin slowly contracts - SLOWLY



[2]. Sunken field - obviously partly contracted at sphincter



a) Touch center of field + entire field contracts expands to almost a flat sheet in 1/4 sec
Mesh uniformly contracted so pore size decreases over entire area.


Field only

b) relaxation + sinking of the disc in 5 sec to 10 sec Partial Complete - Pore open again
but appears as a whole slightly smaller - ie some slight additional contraction of marginal sphincter with long relaxation time is highly probable.


Field only

c) 2nd touch same result - relaxation to 1/2 in 15 sec
by 30 sec back to full pre-stimulation shape


Field only

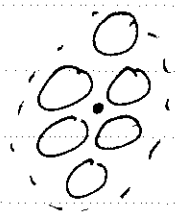
d) 3rd touch - some — relation

e) 4th touch - some — No relaxation - immediately goes

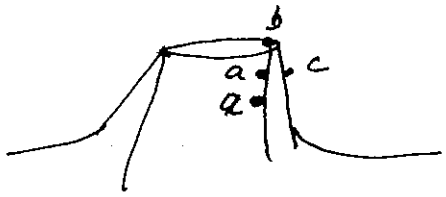
Double Touch

f) a 5th touch - results in fairly rapid sphincter contraction
Mesh rapidly relaxes to sunken position
but sphincter slowly dilates in relaxation over period of several minutes - 2-5 min to re-open again.

[3] Heavy touch between discs results in wall contraction and fairly even contraction of a large surface area ~ 1 cm diam
This results in disc mesh contraction as well in 1-5 secs but NOT raised as in direct touch to the discs. All pores in 1 cm area get uniformly smaller.

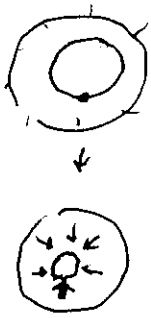


[4] Osculum



a) Touch for inside osculum rim has no obvious effect

b) Touch at osculum rim results in rapid strong local contraction + less sudden but still rapid contraction of entire osculum field for about 0.5 cm behind in ¼ sec; area of contraction about 0.5 cm^2 surface



c) Touch outside osculum - similar to above if close to margin

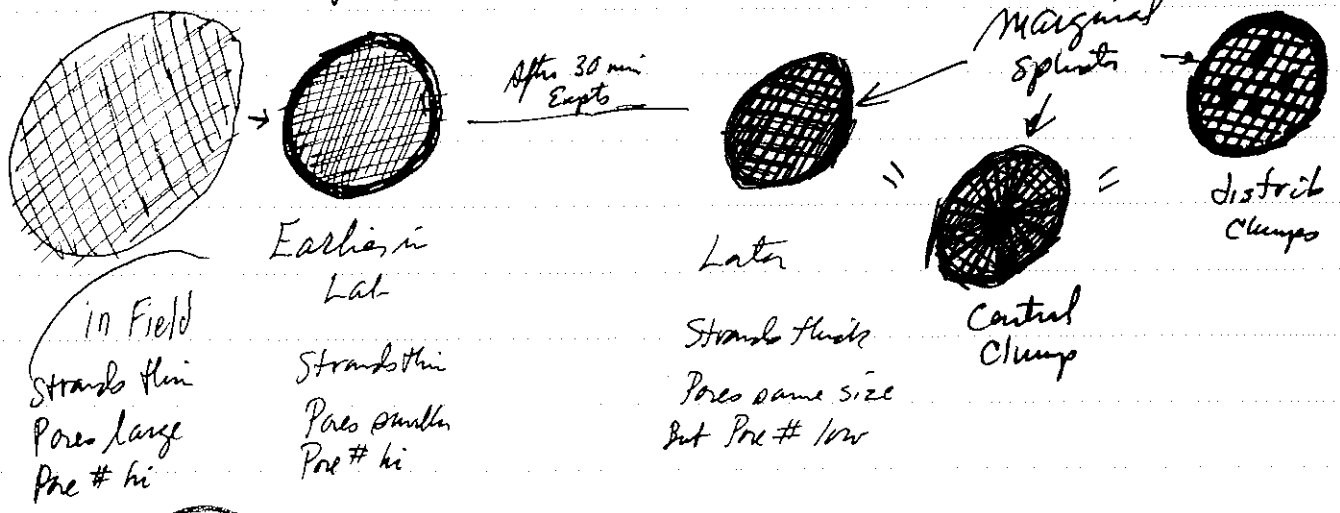
Relaxation time about 2 min

[5] 10 AM

Touch of pore discs now resulting in entire mesh contraction - no local contraction seen now - perhaps the degree of contraction generally is too high to prevent spread - in other words the discs are not sufficiently relaxed to allow physical dampening of the physical stimulus - they are too tight + cell cords thick enough now to distribute the physical force across the discs. Here it is as rapid as earlier local but now across the entire disc like earlier marginal stimulation.

Disc mane become noticeably smaller and more obviously the meshwork of the discs themselves is

now thicker – the pore borders are not simple thin ~~ss~~ wisps but broad bands of tissue. Presumably this thickening also probably means that some pores are now totally occluded & pore # per disc is decreased. Clumping of the strands is also evident – either symmetrically in the middle or irregularly in clumps here & there.



– END –

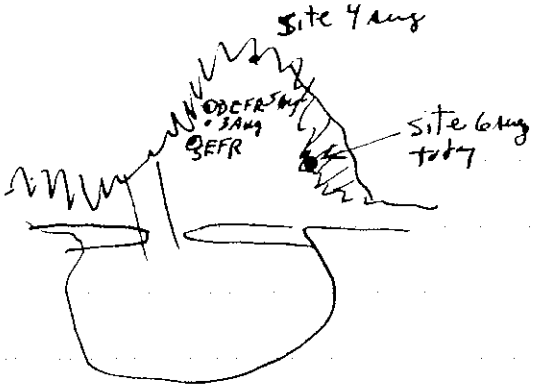
Neg File 8-11-9 thru 18

Photos taken – PlusX w Minolta Bellows Cat. w flash.

Fixed by perfusion w Bouins in SW – 78-8-5.1 control
Trimmed off membrane plate & hardened in Bouins & into vial & PCs into Formalin.

(Bract 69) also collected dirty finger Spg 78-8-5.2

1978



6 August

Dove EFR w Chris & Lloyd.

80' max 40 min, 9 AM - 9:40 am

Fauna reasonably good but Not as rich as at "3 Aug" site or at SEFR

Slides 2621-2629 ~~E6~~

Photog (a) Nikonos color ASA 64 Metz Full pwr 1/60 @ f8 3' setting
Various sponges

Photog (b) Stereo color ambient ASA 64 1/25 at f4 (dark morning) set at ~5'
Xestospongia, etc

Slides 2630-2646

~~No~~ collection of speco – ~~not body frags sponge~~

Evening Pack up – Met Verena who just arrived.

7 August Left – Woodly drove us to Airport w Verena
Tunnicliff

~~Dave Thomas~~ Red Cross Enroute

DAWSON Cruise 1978

27 MAY

Arrive Ship ~ 1 PM - onboard -
Spend day looking around & Setting up for O2 analysis
Gravity Feed No Good - Leaking! - Change to Direct Fill.

28 May - Set up O2 analysis Winkler -
Calibrate System - No 5ml pipette so Used the 3ml
Syringe - not bad reproducibility.

Blanks = Zero Correction - No BLUE COLOR

Calibration - Set 1 Titration .836, .834, [.818] → $\bar{X}_3$ .82933
Set 2 " .836, .829, .828 → $\bar{X}$ .8310
Set 3 " .828, .830, .830, $\bar{X}$ .82933
Set 4 .836, .827 .838 $\bar{X}$ .83367

$\bar{X}_{Total\ 16}$ 0.830833

Worst set 0.34% for mean of 3
Worst Single 1.54%

∴ Calc f value 1.2036

mg-at O_2/L = 6.054108 × V ml (correction of 50x for .5 ml thios Titrant)

ml O_2/L = 67.80601 × V ml

mg O_2/L = 96.86573 × V ml

1979

1st Station ~ 11 PM 28th May - Rosette + Computer Fouled - No Data - No Water samples

29 MAY | Made 1st shift 12 mid - 4 AM 29th ~ 3 stations
Slept + went out for 12 Noon - 4 pm watch
Then do Oxygen Analyses for rest of Day.

		ml titrate $\bar{x}$	Calc $\bar{x}$ ml O_2/L
Station 1	Surface Oa	.108 .107 .109	7.32
	Surface Ob	.109 .109 .107	7.34
	Surface Oc	.106 .109 .109	7.34
Station 2	Surface O	.109 .109 .110	7.41
Station 3	Surface O	.120 .122 .119	8.16
Station 4	Surface O	.112 .111 .112	7.57
Station 5	Surface O	.110 .114 .111	7.57

	Bottle	Titration ml	O_2 Conc ml O_2/L
Station [6]	Surface 0	.116 .116 .116	7.87
Station [7]	Surface 0	.112 .113 .112	7.64
	155m '4'	.054 .052 .052	3.57
Station [8]	Surface 0	.115 .116 .115	7.82
	215m '1'	038 .039 .037	2.58
	220m 2	.056 .055 .055	3.75
	225m 3	.037 .038 .036	2.51m
	230m 4	.037 .037 .037	2.51

cont'd.

1979

29 May Cont'd

Station (12)	Surface '0'. 4th Fault		
		.111	7.56
		.112	
	260m '1'	.035	2.35
		.035	
		.034	
	265m '2'	.051	3.46
		.051	
		.051	
	270 '3'	.042	2.93
		.041	
		.042	
	275m '4'	.040	2.71
		.040	
		.040	
Station 11	Surface 0	.111	7.59
		.113	
		.112	
	173m '1'	.050	3.41
		.051	
		.050	
	178m '2'	.050	3.46
		.051	
		.052	
	183m '3'	.069	4.70
		.070	
		.069	
	188m '4'	.053	3.59 ml/L
		.053	
		.053	

Beat Out at 9:30 pm & Watch Coming up.

Rest of 1979:

1. See Book on P.E.I. Yoldia - Ellerslie study w. J.B. Lewis + C. Lalli + S. Yonakim ca 8 Dives to 8-25 feet Depths

→ 2. See Rest of Dawson Cruise Data in Data Sheet Series. - Not "Booked".

	Scale	=	mm	1 Div =
0.6	89		1	157.3 μm
1.0	100		1.0	100 μm
1.6	80		5	62.5
2.5	77.5		3	38.7
4.0	82.5		2	24.2

Film - Plus X ~~pan~~ ASA 125

1) Yoldia ~~feces~~ 1mm scale f8 1/2 sec spec 3 Jul 79 #1 9-11 pm collect

1980

July 9 - July 19 Cruise on M.V. "Gulf Star"
to Northern Gulf.
Chief Scientists : Stephen Peck M.Sc. Fisheries + Oceans
Dr. Jean Piuze Fisheries & Oceans
For Activity + Results see "Gulf Star" Book
12" Petersen Grab at ~60 stations carried out
+ Bongo Nets for Howard Powles
Sal Temp Density > CTD, Bottle casts for Chlorophyll A, Suspended Matter (wt), Mercury, Nutrient Salts, PH, Turbidity

No O_2 (considered Passé)

July 22 - Ready to Leave for West Coast

July 23 - Start off. - Arrive Calif Aft of 26th

1980

August 4 mon — Began drive to Vancouver Island for Hexact collections - Drove up to Medford, Ore. + stayed over there.

August 5 Tues — - Drove up through Seattle to long Customs wait at Border - to Ferry at Tsawassen - made the 8:30 Ferry & arrived about 10pm in Dark - Drove by the lab + campground + took motel in Sidney for the evening.

August 6 wed — - to bank for checks + to see Verena Tunnicliffe at I.O.S. (Institute of Ocean Science) + Lunch with Dick (Richard V...) + met her beau Bruce .... from Peabody - Botany section.
Back to lab to meet Ralph Brinkhurst - head of Benthic Oceanography + Lab to work in w Brenda + others. Got busy making solutions + such. - Worked into evening + stayed at Tsartlip campground in Brentwood Bay that night.

August 7 Thurs — Continued making solutions all day + getting set up for the collection Friday. Met Carol Falli + Tim Parsons - visits to their motel for next evening. Camped out again at Tsartlip.
(New Hose for Regulator replaced). Made reservations for Sunday dive trip.

August 8 Friday

Called George Mackie ~ 10 to meet Saturday for lunch.

Completed preparations for the final collection, Organized for Dive in afternoon. ~~Got mass [illegible]~~ = Elbow Pt

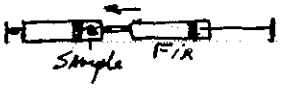
19' Boat Whaler w 65 HP on it & w buddy as Dave Pearson - to Repulse Rock, Saanich Inlet

48° 32.74' N
123° 32.33' W

Dive ~ 2 PM, ~~to~~ 100' + to sponge area. Several dead specimens seen below. Collected Tissues 2:10 - 2:15 pm with one in situ collection by Syringe as Set "O" (in Situ) with 1% Paraformaldehyde + 1% Glutaraldehyde in S.W.

5% Glut Stock^{sw}	4 ml
5% Paraform SW Stock	4 ml
Sea Water	12 ml
NaCl	0.028 g
	20 ml 30'/m

Note: Osmolalities Calculated based on:
Sea Water as 1,080 mOsm
3.5% NaCl as 1,080 mOsm
0.1 M Sorensen Buffer 226 mOsm (= 0.7% NaCl)
0.18 M Sucrose ~ 200 mOsm
Glut/OsO4/Paraf w Unknown Osmotic effects -



Piece of Aphrocallistes vastus broken off - popped into Syringe, Water Drawn out, mated to Fix Syringe + Fixative Drawn in - 16 ml! -

To be conservative, Consider it as Prob all from 1 specimen

Then collected 2 large pieces of sponge + placed in plastic Bags, into bucket - Transported to surface + boat.

Entered Boat + proceeded to fix specimens as soon as possible, Began 2:30 doing the mixture as the first as follows:

1980

August 8 cont'd

Set II Glutaraldehyde + osmium fixation : Added osmium after dive to vials just before the specimens added.

in Sea Water in NaCl

[IIA1]: 1% Glut + 0.5% Osm in SW :

5% Glut in SW	2 ml
Sea water	6.5 ml
Na Cl	14 mg
2% Osm in SW	2½ ml

10 ml in vial

[IIA2] 1% Glut + 1% Osm in SW

5% Glut in SW	2 ml
Sea water	3 ml
Na Cl	14 mg
Osm 2% in SW	5 ml

10 ml in vial

[IIA3] 1½% Glut + 1% Osm in SW

5% Glut in SW	3 ml
Sea water	2 ml
Na Cl	21 mg
2% Osm in SW	5 ml

10 ml in vial

[IIA4] 1% Glut in 1% Osm in 110% SW

5% Glut in SW	2 ml
Sea water	3 ml
Na Cl	49 mg
2% Osm in SW	5 ml

10 ml in vial

in PO4 Buffer → [IIB5] 0.8% Glut, 0.7% Osm in PO4 buffer saline :

0.2 M Buffer Soln PO4	6 ml
5% Glut in SW	2 ml
Na Cl	182 mg
2% Osm in SW	4 ml

12 ml in vial

[IIC6] 0.8% Glut + 0.7% Osm in Cacodylate buffer saline

Cacodylate pH 7.4 buffer	6 ml
5% Glut in SW	2 ml
NaCl	182 mg
2% Osm in SW	4 ml

12 ml in vial

PO4 buffer soln - pH 7.4 mixture : 0.2 M.

a) $Na_2HPO_4 \cdot 7H_2O$ 10.73 g in 200 ml dist water

b) $NaH_2PO_4 \cdot H_2O$ 1.38 g in 50 ml dist water

Mix a + b in ratio 40.5 pts a to 9.5 parts b gives 0.2 M soln.

Cacodylate buffer soln pH 7.4 :

Mix : Sod cacodylate 1.12 g

in Dist water 25 ml

add 0.2 M HCl to make pH 7.4 on pH meter

Aug 8 contd

Set I - Glutaraldehyde / Paraformaldehyde solutions

in Sea water

[IA1] 1% Glut + 1% Paraf in SW

5% Glut in SW	2 ml	10 ml
5% Paraform in SW	2 ml	
Sea Water	6 ml	
NaCl	14 mg	

[IA2] 1% Glut + 1% Paraf in 0.9 SW

5% Glut in SW	2 ml	10 ml
5% Paraf in SW	2 ml	
Sea Water	5.8 ml	
Dist Water	0.6 ml	

[IA3] 1% Glut + 1% Paraf in 1.1 SW

5% Glut in SW	2 ml	10 ml
5% Paraform in SW	2 ml	
Sea Water	6 ml	
NaCl	56 mg	

in PO4

[IB4] 2.5% Glut, 2½% Paraf in PO4 Saline Hi

10% Glut in DW	2.5 ml	10 ml
10% Paraf in DW	2.5 ml	
PO4 buffer Mix 0.2 M	5 ml	
NaCl	300 mg	

[IB5] 2.5% Glut 2½% Paraf in PO4 Saline med

10% Glut in DW	2½ ml	10 ml
10% Paraf in DW	2½ ml	
PO4 buffer Mix	5 ml	
NaCl	275 mg	

[IB6] 2½% Glut, 2½% Paraf in PO4 Saline Low

10% Glut in DW	2½ ml	10 ml
10% Paraf in DW	2½ ml	
PO4 buffer mix	5 ml	
NaCl	250 mg	

[IB7] 1% Glut 1% Paraf in PO4 Saline Hi

10% Glut in DW	1 ml	10 ml
10% Paraf in DW	1 ml	
PO4 Buffer Mix	5 ml	
NaCl	325 mg	
Dist water	3 ml	

[IB8] 1% Glut 1% Paraf in PO4 Saline med

10% Glut in DW	1 ml	10 ml
10% Paraf in DW	1 ml	
PO4 Buffer mix	5 ml	
NaCl	300 mg	
Dist water	3 ml	

[IB9] 1% Glut 1% Paraf in PO4 Saline Lo

10% Glut in DW	1 ml	10 ml
10% Paraf in DW	1 ml	
PO4 buffer mix	5 ml	
NaCl	275 mg	
Dist. water	3 ml	

Cont'd

1980

August 8 contid

SET III — Paraformaldehyde Sea Water w/ PO4

[III a 1]	1% Paraform in 1.0 SW	[5% Paraform in SW 2 ml; Sea water 8 ml]	10 ml
[III a 2]	2.5% Paraform in 1.0 SW	[5% Paraform in SW 5 ml; Sea water 5 ml]	10 ml
[III a 3]	1% Paraform in 0.9 SW	[5% Paraform in SW 2 ml; Sea water 7 ml; Dist water 1 ml]	10 ml
[III a 4]	1% Paraform in 1.1 SW	[5% Paraform in SW 2 ml; Sea water 8 ml; Na Cl 35 mg]	10 ml
[III b 5]	2% Paraform in PO4 buffer	[10% Paraform in DW 2 ml; PO4 Buffer mix 5 ml; NaCl 275 mg; Dist water 3 ml]	10 ml
[III b 6]	1% Paraform in PO4 buffer	[10% Paraform in DW 1 ml; PO4 Buffer mix 5 ml; NaCl 275 mg; Dist water 4 ml]	10 ml

Put all vials into the ice cooler + the Syringe Samples + left over pieces + headed for Port Bay. On Arrival we tied up to R.V. Vector to check screw for fouled lines - Dave Dove w dry suit while I stayed in boat - on dock Later + unloaded at ~ 3:30 pm off to get a shower + wash up.

Returned Samples + Equipment to Lab by 4 pm. - Began Rinse solutions - 4 pm to 5:30 pm - All rinsed 2x in Sea water. and handled as follows:

Set O	Para/Glut SW SITU	2x Rinse SW	Post fix, 1% Osm in SW
Set I a	Para/Glut SW	2x Rinse SW	Post fix, 1% Osm in SW
I b	Para/Glut PO4	2x Rinse SW	Post fix, 1% Osm in SW
Set II a	Glut/Osm SW	2x Rinse SW	Post fix, 1½% Uran Acet in DW
II b	Glut/Osm PO4	2x Rinse SW	Post fix 1½% Uran Acet in DW
II c	Glut/Osm Cacod	2x Rinse SW	Post fix 1½% Uran Acet in DW

August 8 cont'd

Set III a Paraform/SW | 2x Rinse SW | Post fix: Osm 1% SW |

III b Paraform 4% | 2x rinse SW | Post fix: Osm 1% SW |

Remnants into 10% Formalin in Jar.

by 5:30 put all 2ndary Treatments into fridge & went to Tim + Carroll Parsons motel for Supper - met George Grice from WHOI + someone else - Name Not Stuck - Had burgers + Salads + lots of Alcohol -

Left fairly early - ~ 8:30 pm

Return to Lab ~ 9 pm - Began 2nd Rinse w SW all sets; handling as follows:

Sets I + III	Set I + O	Set III
	1° Para Glut Rinse	1° Paraform Rinse
	2° 1% Osm SW Rinse	2° 1% Osm SW Rinse
in 9:30 - out 10:30 →	3° 1½% Uran Acet in DW	3° 1½% Uran Acet in DW

Set II

1° Glut/Osm
Rinse
2° 1½% Uran Acetate
Rinse 2x DW ← Cut into pcs in dish - one piece Rinsed + into 50% ROH
one piece Rinsed + into HF
Remnants into 50% ROH in Vial + Sealed
[Excess Remnants Pooled into Jar]

HF treat ½ of every sample → 3° 4% HF in 10:30 - out 11:30 pm
Rinse 2x DW
into 50% ROH

Sets I + II after uranin acetate all handled similarly

HF by August 9th

12:10 - 01:10 → 1 pc into HF 4% for 1 hr → Rinse 2x in Water → 50% ROH
1 pc Rinse 2x in DW + to 50% ROH
Remnants Rinse 2x in DW + to 50% ROH

By 1:15 all samples Now in 50% ROH + Consist of

A) ALL Sets [O, I, II, III] → 1 pc Desilic, 1 pc w spicules, 1 vial ROH,
B) Pooled Excess Remnants of Sets - materials after 1°, 2°, 3° Fix but None HF Treated - Excess Jar Blocks
C) Remnants of Collection - large Pieces Broken + Put into 10% HF in Quart Jar. w vial of small shrimps

1980

August 9 Saturday. Dehydrate all samples sets (Epon + Excess Spurr) through ½ hr each:
ROH: 50% → 75% → 95% → 100% → 100% — Propylene Oxide, PO_2, PO_3
1:30 pm ; sealed Excess Vials ; By 4 am

Begin 1st infiltration in Spurr Epoxy [Regular Mixture] at 4:30
w equal Volume additions at 500 pm, 530 pm
Final Spurr infiltration (in drained Glass Vials) at 630 pm for 3 hrs
Final Spurr transfer to Embedding Molds at 9:50 + into oven then at 70°C
bake for 8 hrs - out at 5 pm Saturday

[From 10 am to 5pm busy mixing chemicals for Mondays second collection of Specimens. Also Returned Tank + weights to the Dive Shop.)

12 noon - Met George Mackie at his house up in upper Sidney for Lunch - discussed his Results w Rhabdocalyptus dawsoni + looked over his M.S. on the Ever. Especially the dense plaque junctions - Nice Photos - Took MS to review over weekend. He gave me info on his fixative of best Results:
~ 7½% Glutaraldehyde in 1.2% Osmium in
0.16 M S-Collidine buffer w NaCl added
See Formula supplied later in this Report →

Took Motel for Sat + Sunday Nites + went back to Lab to ~~finish~~ romain + Finish Mixing Chems for Monday + Turn off oven at 5pm + Remove Specimens.

1980

August 9 (Sat) Cont'd

Return to Motel + had Supper with T.V. Smelly * Noted Finger Numbing Pain + Bruising

George Madeira came by to drop off a set of supplies for fixative: Recipes + 5 ml of s-Collidine + 20 ml of IN HCl

His Recipe (actually Dr Singla's developed by trial + Error) was as follows.

a) First make up 0.2 M s-Collidine buffer: PH 7.4 - 7.45 from Hayat Vol I p 342 modified by C.L. Singla

Pure S-Collidine (Polysciences Cat # 396)	5.34 ml
Dist Water	100 ml
IN HCl Polysciences	18 ml *
Dist water to make	to MAKE 200 ml.
	200 ml of PH 7.41 0.2 M s-Collidine buffer.

* other vols of HCl give PH of

10	7.74
12	7.67
14	7.59
16	7.50
→ 18	7.41 ←
20	7.33
22	7.25

b) Then Prepare Fixative * - Trump + Bulger 1966 — Mix Parts Immediately before Use ONLY — Preferable to fix Thrice in Cold at 15-30 min intervals. Usually solns Turn Muddy on Interaction

50% Glutaraldehyde sol aqueous	1 part
4% Osmium Tetroxide aqueous	2 parts
0.2 M s-Collidine buffer Soln	5 parts
NaCl	1% of Volume by Wt

Clearly considered, I did not have 50% Glut + almost all my Osmium was now used so I made a modified recipe for Monday's fixation to be given later in this Report →.

to Sleep + Dreams.

1980

Fingers Swollen + Bruised. Presumably from Sponge Contact Reaction

10 August (Sunday) Arose + breakfasted + Got Dive Gear together - Drove off to Dive Shop for Cruise Dive - 2 tanks + weights Rented + Drove Down to Dock w Vickie ? from Toronto - Waited Around - Loaded Gear onto boat - Cabin Cruiser ~ 40' w ~ 20 people on board Went to D'Arcy Island ~ 45 min cruise - w Kelp bed edge anchored

Dive 1 Dove w Vickie for 45 min to 30' max Depth about 11:30 - 12:30 Regulator leaky, bottom w urchins, Kelp, rock, scallops rare, rock Scallops, abalone in shallow water - small specis of northerns, lots of sea-stars, snails, Nudibranchs, Ascidians - Fallot pea sponge seen in this area. Returned boat.

Dive 2 Dove after lunch w Peter someone - Swam sandy over hill + dale w lots of shell rubble to 100' for total dive time of 20 minutes so decompression OK-? but by tables probably in Red following the first dive - Nope probably OK. No special sightings except a few small Fishes - No pens or hexacts seen.

Sat Cruise Returned ~ 4:30 pm to dock - unloaded - Drove to Rubber Shop to return tanks + weights - went to store to get Gloves + Groceries + Returned to motel for Supper - washed up dive gear + spend about 4 hours going over George Mackie's manuscript on R. dawsoni. Notes on the MS. will be found in Reprint File under Mackie, G. O. 1980.

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11 August Monday Cleaned up motel after breakfast, loaded up + headed into the Lab to prepare for 2nd Collection dive. Priority to make up a Single Fixative for collection:

a) prepared buffer as indicated above - did not check for pH but took Hein's word for it.

b) Prepared Syringe for Single Collection as follows

i) Set 1 vials w NaCl + buffer Soln

ii) Syringe w 4% Osmium Soln Aqueous -

iii) Syringe w 25% Glut aqueous soln
iv) Syringe w 2% Osmic in SW
v) Syringe w 10% Paraform in SW.

See Final Solutions under 1° Fixation Procedures below:
Also loaded other Syringes w solutions for Fixation, got dive bucket Ready + general equipment for the dive: Rented Tank + weights...

Took Stone Whaler at 1:10 pm w Verena as my dive buddy + new driver. Down to White Lady: Republic Rocks by ~ 1:50 pm. Suited up + into water by 2:10 pm - Dove down to 100' w huge Population of "Cloud Sponges" Aphrocallistes vastus; took (a) piece for the general fixation - into bag + Sealed w Rubber band, then collected one of the many Available Small Specimens ~ 1" long; Appeared that many Specimens were broken off - had reattached where they fell + then started new specimens from higher up ones. Noted many Yellow Green + Black Rockfish Setting in Osceola + A. V. Saw a large medusa - 2' diam by 40+ feet trailers; collected a piece of "White-"garden" from upper cliffs at ~ 60' - proved to be Crypt Hydroids (brown), White crypt Ascidians, w lots of Vorticellans + other stuff - bryozoans, Calc. Spgs etc on them.
Returned to boat at ~ 2:30 pm

Began Preparation of Set 9 fixatives immediately

[9-1] (vial): [S Colloidine buffer Soln - 6.0 ml
NaCl 100 mg
added 4% Osm Aq 2 ml
25% Glut Aq 2 ml] 10 ml

0.8% Osm
5% Glut.

1980

August 9/11

Monk

[9-2] vial = [Buffer S Collidine 5.0 ml; NaCl 120 mg; 4% Osm 2½ ml; add = 25% Glut 2½ ml] 10 ml — 1% Osm, 6.25% Glut

[9-3] vial = [S-Collidine buffer Soln 4 ml; NaCl 100 mg; 2% Osmium SW 4 ml; add = 25% Glut 2 ml] 10 ml — 0.8% Osm, 5% Glut

[9-4] vial = [S-Collidine buffer Soln 4 ml; NaCl None; 4 ml; 2% Osm SW; add = 25% Glut 2 ml] 10 ml — 0.8% Osm, 5% Glut

[9-6] vial = [S-Collidine buffer 4 ml; NaCl 100 mg; 2% Osm SW 4 ml; add = 10% Paraform DW 2 ml] 10 ml — 0.8% Osm, 2% Paraf

Same Soln ↑ ↓ Same

[9-7] vial = [S-Collidine buffer 4 ml; NaCl 100 mg; 2% Osm SW 4 ml; add = 10% Paraf. DW 2 ml] 10 ml — 0.8% Osm, 2% Paraf

[9-5 vial to end w fixation of 0.8% Osm 2% Paraf would have been same as 9-6 + 9-7 solution + was omitted]

After adding Osm + Glut + Paraform I added piece of Specimen + Sperm + closed vials of Set 9.

Then added Osm to other Sets - Set VI

Set VI : Osmm SW

VI a/1 vial ~~add~~ Salt water 5 ml; 2% Osmium in SW 5 ml] 10 ml — 1% Osm SW

VI a2 vial – Sea water 7.5 ml
add – 2% Osm SW 2.5 ml
10 ml 0.52 Osm SW

VI a3 vial – [Sea water 4 ml, Dist water 1 ml]
add Osm 2% SW 5 ml
10 ml 0.9% Osm ≈ 0.95W

VI a4 Vial = [Sea water 6.5 ml, Dist water 1.0 ml]
add 2% Osm SW 2.5 ml
10 ml 0.45% Osm ≈ 0.95W

VI b6 Vial = [PO4 buffer pH 7.4 5 ml, Dist water 0.7 ml, 2% Osm SW 5 ml]
10.7 ml 0.9% Os ≈ PO4 buffer Saline

Then swirled & added piece of Specimen A.V & Sealed & Swirled.

Then Set IV prepared & fixed

[Set IV b]
IV-b – Vial = [PO4 buffer mix pH 7.4 5 ml, NaCl 140 mg, 10% Paraform ≈ DW 1 ml]
add – [2% Osm ~ SW 5 ml]
11 ml 1% Paraf 1% Osm ≈ PO4 buffer

[IV a soln of 1% Paraf & 1% Osm in S.W. Not mixed ≈ new spec! Room temp of Osm Solns.]

Then Set V finally Fixed – Sodium Permanganate –
these already made up & Not Mixed w brand:
Calvert P53-54 says use sodium Veronal Buffer
but I couldn't get this easily from my sources ≈ Sa –

1980

August 11 Monday Contd

Set V a 1 : [Sea water 10 ml, Sodium Permang. .1 gm] 10 ml — 1/2 ~ SW

V b 2 [Sodium Permang .1 gm, H_2O 10 ml, NaCl 250 mg] — 1/2 ~ Lo Sal

V b 3 [Sodium Permang 0.1 gm, H_2O 10 ml, NaCl 275 mg] — 1/2 ~ Med Sal

V b 4 [Sodium Permang 0.1 gm, H_2O 10 ml, NaCl 300 mg] — 1/2 ~ Med-Hi Sal

V b 5 [Sodium Permang. 0.1 gm, H_2O 10 ml, NaCl 330 mg] — 1/2 ~ Hi Sal

Swirled & Sealed & Put all Vials in Cold.
Put left over Specs & Small one & "White-Garden" on ice also & Took off for Pat Bay.

Return about 4 pm — Shower & Wash up
Back to Lab to begin Processing by 5 PM [1° fix ~ 2½ hrs Cold.]

Secondary Fixation : begun 5 pm

Set 9 - Rinse 2x in [S-Collidine buffer 6 parts, ~~Distilled~~ Distilled water 5 parts, NaCl 1/20 w/Vol by wt.] FIXative VERY MUDDY!
then in Uranyl acetate 1½% for 1 hour
Rinse 3x in distilled water & Subdivided — PC for HF - Epoxy; PC for No HF - Epoxy; Remnants & Vial Roll

11 August Sets IV, V, VI

Rinse 3x in Distilled water

2° Fix: Sets IV & VI in Uranyl Acetate 1½% aqueous for 1 hr, then subdivided as for others

Set V subdivided – No 2° Fixative at all

Surplus of specimen was dried & small one 10% Formalin Fixed.

All samples in HF 4% of one part for 1 hour in Room Temp. at ~ 9:30 - 10:30 pm.

Rinse 3x in Dist Water & begin dehydration at ~11:30

12 August 30, 50, 75, 95, 100, 100₂, PO, PO₂ PO₃ then infiltration begins 3 volume additions & Full epoxy addition by about 3:30 AM

Final Transfer to Molds by 6 pm 70°C 8 hour cure time to be finished at 2 pm.

Worked Cleaning up bottles, disposing of unused reagents & packing for most of interval – went to take a rest break at ~ 11 AM – slept till 1 pm: Return to Lab to load up & Clear out. Say Goodby. Made the 3 pm Ferry to Tsawassen & through Customs by ~ 6 pm – drove down through Olympia to Tumwater for Motel 6' Night Jenny's burger's Supper – Good Sleep. Up at ~~7:30~~

1980

13 August — Up at 6:30 am – breakfast at 7 at Jenny's + on the road South by ~ 8 AM ... Straight Through to Oakland by ~ 10 pm
Fingers Again Swollen + Bruised – Whole Hand

19 August – Rented Trailer in Oakland for 1 way to Mt. Wilson over 1 week after last collection + Exposure to the Sponge my fingers are Still somewhat swollen, Sore, Clearly Bruised & edemous + flushed red on 1st joint + Bilaterally ie Not reflecting specific site of contact w sponge!
the inflamation is very slowly draping w slow flaking of loose dead skin on side.

Summary of Samples: FRIDAY

Boat Fix unless Noted

		Priming Fix	2ndry Fix	Tertiary Fix	Epoxy. Desi	Epoxy. w spics	75-95° ROH storage	10% F	Dry
IN Situ	⊙	Glut/Paraf SW	Osm	Uranyl Acetate	✓	✓	Vial		
	Ia1	Lo Glut/Paraf SW	Osm	Ur	✓	✓	Vial		
	Ia2	Lo Glut/Paraf SW Lo	Osm	Ur	✓	✓	Vial		
	Ia3	Lo Glut/Paraf SW hi	Osm	Ur	✓	✓	Vial		
	Ib4	hi Glut/Paraf PO4 hi	Osm	Ur	✓	✓	Vial		
	Ib5	hi Glut/Paraf PO4 med	Osm	Ur	✓	✓	Vial		
	Ib6	hi Glut/Paraf PO4 Lo	Osm	Ur	✓	✓	Vial		
	Ib7	Lo Glut/Paraf PO4 hi	Osm	Ur	✓	✓	Vial		
	Ib8	Lo Glut/Paraf PO4 med	Osm	Ur	✓	✓	Vial		
	Ib9	Lo Glut/Paraf PO4 Lo	Osm	Ur	✓	✓	Vial		
	IIa1	Glut/Osm Lo SW	-	Ur	✓	✓	Vial		
	IIa2	Glut/Osm SW	-	Ur	✓	✓	Vial		
	IIa3	hi Glut/Osm SW	-	Ur	✓	✓	Vial		
	IIa4	Glut/Osm SW hi	-	Ur	✓	✓	Vial		
	IIb5	Glut/Osm PO4	-	Ur	✓	✓	Vial		
	IIC6	Glut/Osm Cacod	-	Ur	✓	✓	Vial		
	IIIa1	Lo Paraform SW	Osm	Ur	✓	✓	Vial		
	IIIa2	hi Paraform SW	Osm	Ur	✓	✓	Vial		
	IIIa3	Lo Paraform SW Lo	Osm	Ur	✓	✓	Vial		
	IIIa4	Lo Paraform SW hi	Osm	Ur	✓	✓	Vial		
	IIIb5	hi Paraform PO4	Osm	Ur	✓	✓	Vial		
	IIIb6	Lo Paraform PO4	Osm	Ur	✓	✓	Vial		
Quant Jar	FRI	10% Form in Lab	(Remnants of Orig Collection)					✓ Quant	
	FRI	Various	Various	Various			✓ Jar Excess Results		

Sieving of Stuples - Monday

Boat Fix all +

		1° Fix	2° Fix	3° Fix	Epoxy HF	Epoxy w Spicules	ROH Steroid	10% Form	Dry
	IVb	PAraform/Osm PO4	—	2hr	✓	✓	Vial		
	Va1	Sod. Permang SW	—	—	✓	✓	Vial		
	Vb2	Sod Perm Sal Lo	—	—	✓	✓	Vial		
	Vb3	Sod Perm Sal med	—	—	✓	✓	Vial		
	Vb4	Sod Perm Sal med hi	—	—	✓	✓	Vial		
	Vb5	Sod Perm Sal hi	—	—	✓	✓	Vial		
	VIa1	Osm SW	—	2hr	✓	✓	Vial		
	VIa2	Lo Osm SW	—	2hr	✓	✓	Vial		
	VIa3	Osm SW Lo	—	2hr	✓	✓	Vial		
	VIa4	Osm SW MLo	—	2hr	✓	✓	Vial		
	VIb6	Osm PO4 Lo	—	2hr	✓	✓	Vial		
	9-1	Glut/Osm hi Collid	—	2hr	✓	✓	Vial		
	9-2	hi Glut/Osm Collid	—	2hr	✓	✓	Vial		
	9-3	Glut/Osm Lo Collid	—	2hr	✓	✓	Vial		
	9-4	Glut/Osm Lo Collid LOSAL	—	2hr	✓	✓	Vial		
	9-6	Lo Glut/Osm Collid	—	2hr	✓	✓	Vial		
	9-7	Lo Glut/Osm Collid	—	2hr	✓	✓	Vial		
	Mon	10% Form (Smelt Whole spec)		—				✓ JAK	
	Mon	Rinse FW	—	—					✓ Remove

H. M. REISWIG — FIELD NOTES — 9 Aug '76+