Dredge 7

USGS DREDGE LOG

SHIP/LEG F7-91-WP

STATION # 13

DREDGE # 7

DEPTH INTERVAL(m) 1621-1490

DEPTH(m)corrected 1500-1450

DATE JD 203 LOCAL 7/22/91

TIME GMT 0333-0531 LOCAL 1331-1531

LATITUDE 10°21.12 TO 10°21.46'

LONGITUDE 140°07.03 TO 140° 7.06

TOTAL WEIGHT: DREDGE 45 CRUST ~10

PERCENTAGE OF ROCK COVERED BY CRUST 100

PERCENT BROKEN FROM: OUTCROP 100 TALUS 0

THICKNESS OF MN CRUST: MAXIMUM 70 MINIMUM 2 AVERAGE 40

DOMINANT SURFACE TEXTURE smooth, irregular

SUBSTRATE LITHOLOGY Limestone, reefal, recrystallized

NODULES PRESENT 0

REMARKS: 1 boulder, 3 large cobbles, many small cobbles + pebbles -

2 kg overboard of pebbles

USGS DREDGE LOG

Depth Interval 1600-1500m

Cruise I.D. E7-91-WP

Station No. 13

Dredge No. D7

Julian Date 203

Local Date (m/d/y) 7/22/91

Chief Scientist Hein/Ahn

Tech on Watch Walter

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	0247	0333	0531	0614
LATITUDE	10° 21.0	10° 21.12	10° 21.46	10° 20.2
LONGITUDE	140° 06.9	140° 07.03	140° 7.06	140° 07.2
WATER DEPTH	1575	1621	1450	

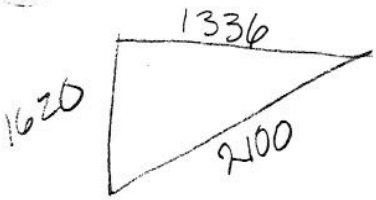
Site Description and Target : Dredging up North flank of small seamount which tops out @ 1450

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
On bottom	0332	1621	1580	—	—	will make up line/payout scope
Stopped paying out	0341					not progressing up line
Started paying out	0344					
Scope is out	0347	1475	2100	—	—	Taking out scope
Tension incr.	0359					
Stopping ship	0438	1480	2100			topped out @ 1410 and starting to haul in wire
Pulling in wire	0449	1470	1850			
"	0451	1470	1800			
Bite	0450	1475		2.5		
Broke off	0451	1475		4.5		
Bite	0454		1725	4		
Broke	0455		1717	5.42		
—	0455	1475	1700	1.5		
Bites	0455	1470	1686	6's		Possible hung up
Still hung	0459	1450		7.+		Paying out wire to decrease tension
Pulling from different angles	0502	1455	1780	1.5		still hung up
Moved west to pull	0518	1455	1650	~8T		Paying out will try again

*on/off bottom, bites, etc.

OTHER COMMENTS: Recovered only limestone will do another dredge ~20mi. north that is deeper.

4410000
2624400
1785600



~1410 started dredging

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Broke off!	0521	1455	1600	5.1		Hauling in
small bite	0522	1445	1538	2.3		
Hung up	0524	1445	1500	7T		
Broke off!	0526	1460	1508	5.0		Great!
Pulling wire in	0527	"	1500	–		
Off bottom	0531	1480	1430			Wire out has been running low
Dredge on deck	0605					
End Sta 13	614					

*on/off bottom, bites, etc.

OTHER COMMENTS:

D7

W. End Caroline Ridge

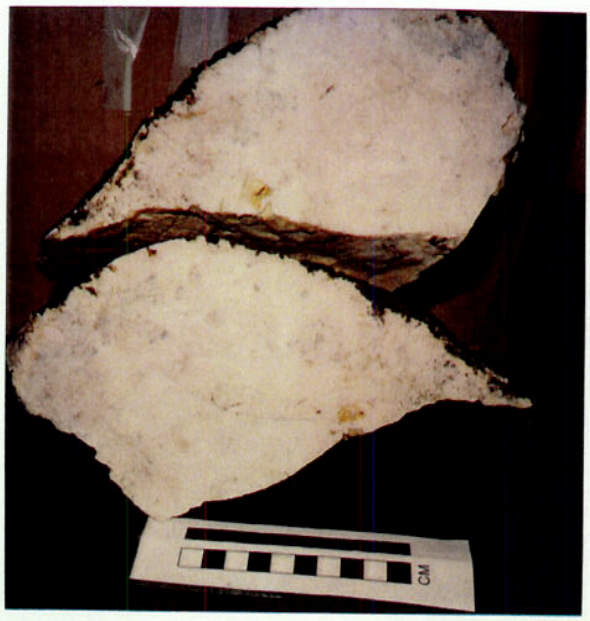
Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D7-1										
-2										
-3										
-4						✓	✓			
-5						✓	✓		✓	
-6										
-7	2	2	4	4			4 ✓			

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 13 x 24 x 25.5 Location: V3-91-NP

Sample Id: D7-1 Weight (kg): 7.5 Depth (m): 1500 - 1450



D7-1

Mn Crust Description

Surface Texture: Patina granular

Mn Crust Thickness (mm):

Min: Patina Max: 2mm Ave: Patina

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	Patina	2	P	Black Porous
2				
3				
4				
5				
6				

Comments and XRD Mineralogy:

Subsa

Substrate Description

Rock Type: biolithite
Coral + shell material

50% YSGS
50% KOR DF

Description: whites to off white coral Dense to porous
Mn dendrites
0-5mm limestone is dense + yellow in color

Biology (?): encrusting forams
Stalked biota

Strongly recrystallized - Calcite

Described by: [signature]

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP **Size (cm):** ~100 Pebbles **Location:** [redacted]

Sample Id: D7-2 **Weight (kg):** ~4 **Depth (m):** 1500-1450

Mn Crust Description

Surface Texture:

Mn Crust Thickness (mm):

Min:_____ **Max:**_____ **Ave:**_____

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1				
2				
3				
4				
5				
6				

No photo

Comments and XRD Mineralogy:

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)

Substrate Description

Rock Type: Coral (98%) + Shell (2%) fragments
1 piece of biothite

50% USGS
50% GORDI

Description: Subangular fragment
99% white
1% orange stain - hard slightly calcareous
close Mn crust deposition?
recrystallized

Shell - mollusks

Biology (?): None

Described by: JS

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): ~2.5 Pebbles to Cobbles Location: ~~V2-91-NP~~ W. Pac Caroline Ridge

Sample Id: D7-3 Weight (kg): ~ 3kg Depth (m): 1500 - 1450

Mn Crust Description

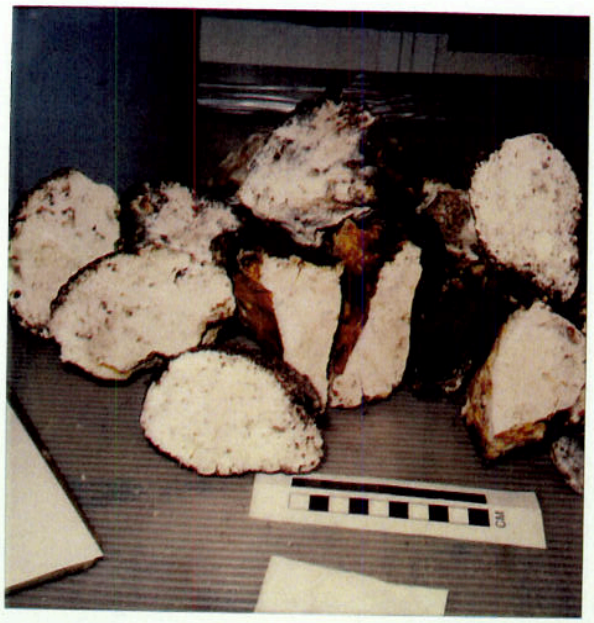
Surface Texture: granular

Mn Crust Thickness (mm):

Min: Patina Max: 3mm Ave: 1

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	P	3	1	Black porous
2				
3				
4				
5				
6				



D7-3

Comments and XRD Mineralogy:

Subsar

Substrate Description

Rock Type: Rudstone with misc. coral fragments.

50% USGS
50% ISORDI

Description: Cream, white, dirty yellow colors. Most samples are porous with Fe-Mn filling pore spaces. Misc. coral fragments - all coated w/ Fe-Mn crust.

~~Biology (?)~~: much moldic porosity recrystallized

Described by: L.S

Subsampled by:

Some orange layers are not calcareous ~ phosphatized?

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 18x17x12 Location: V3-91-NP

Sample Id: D7-4 Weight (kg): 4 Depth (m): 1500-1450

Mn Crust Description

Surface Texture: A braided - smooth granular on sides, smooth on fracture surfaces

Mn Crust Thickness (mm):

Min: 58 Max: 70 Ave: 60

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	20	30	25	massive, slightly
2				porous
3		35	35	vuggy - filled w/
4				brownish mud
5				
6				

Comments and XRD Mineralogy:

Mn dendrites & diffusion fronts in Lms

Subsampl

D7-4A DPTS, XRD CFA burrow + surrounding rock

Substrate Description

Rock Type: Limestone partly phosphatized

Description: white vuggy Lms w/ some moldic porosity, w/ CFA filling long burrow & vugs (repl carbonate sed)

Biology (?):

Described by: HEIN

Subsampled by: HEIN

D7-4

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 26×17×13 Location: W. End Caroline Ridge [redacted]

Sample Id: D7-5 Weight (kg): 5 Depth (m): 1500-1450

Mn Crust Description

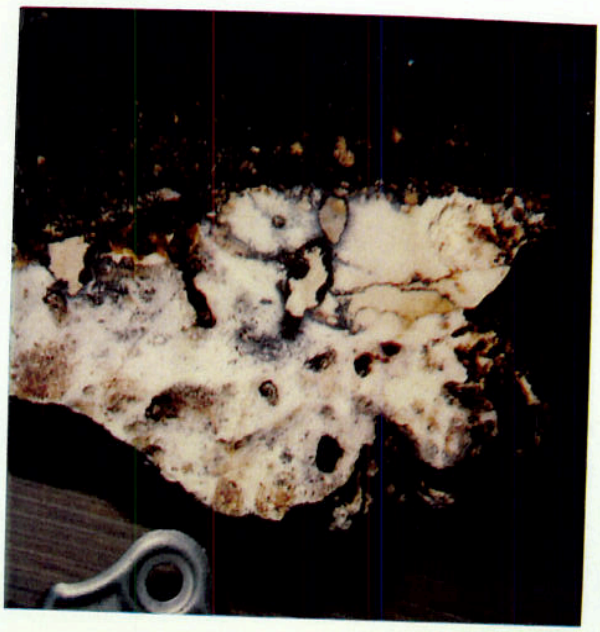
Surface Texture: Current smooth botryoidal - subdued botryoidal

Mn Crust Thickness (mm):

Min: 37 Max: 60 Ave: 42

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	20	25	22	massive, minor
2				porosity
3	20	35	20	vuggy, filled w/
4				brown ooze, brownish
5				oxidized soup
6				CFA at boundary w/ Subst.



D7-5

See back for different exposure for crust

Comments and XRD Mineralogy:

botryoidal - granular on sides
large vugs filled w/ CFA
(repl. Carbonate Sed?)

Mn vug fill & dendrites in Lms

Subsam

D7-5A	Polar	Soft sed filling internal vug
D7-5B	DPTS XRD	CFA - Lms

Substrate Description

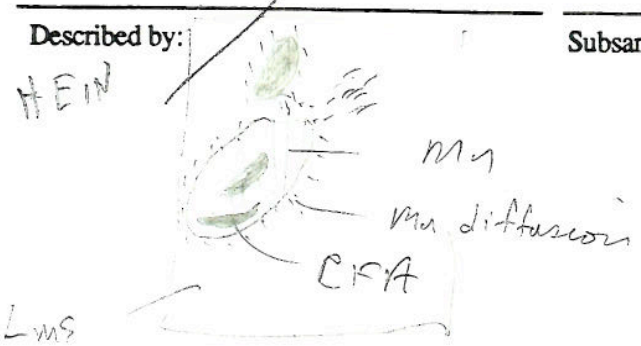
Rock Type: Limestone - (Clastic) parts strongly recrystallized, gel

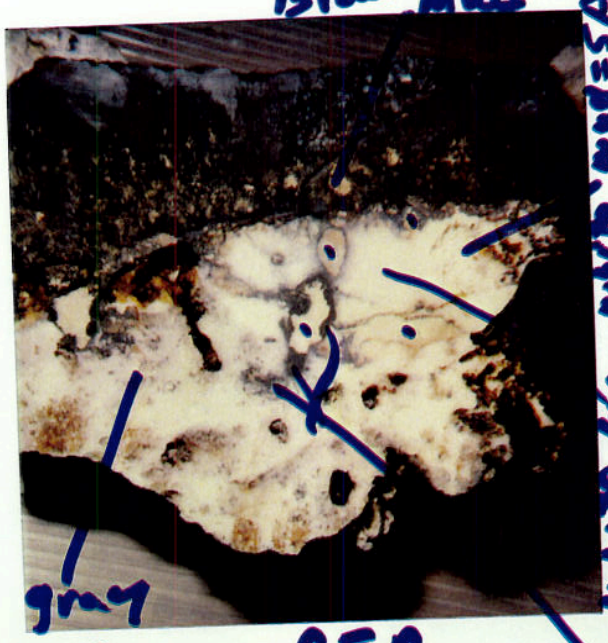
Description: mottled grays, yellow-brown-white - differentially phosphatized - Mn dendrites + vug fill

Biology (?):

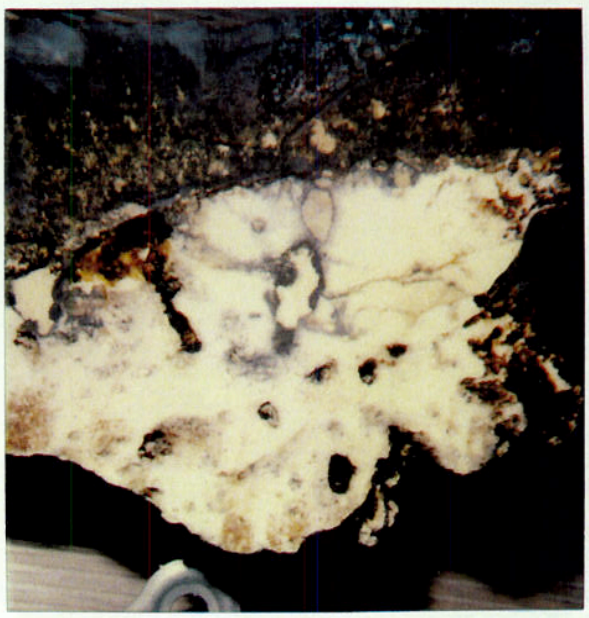
Described by: HEIN

Subsampled by: HEIN





D7-5



D7-5

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 33x22x17 Location: ~~V3-91-NP~~ W. End Caroline Ridge

Sample Id: D7-6 Weight (kg): 20 Depth (m): 1500-1450

D7-6

Mn Crust Description

Surface Texture: granular

Mn Crust Thickness (mm):

Min: <1 Max: 2 Ave: 1

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1				
2				
3				
4				
5				
6				

Comments and XRD Mineralogy:

Mn dendrites in Lms

Lines borings

Subsamp

Substrate Description

Rock Type: Limestone

Description: massive, strongly recrystallized, reefal Limestone - calcite minor moldic porosity

Biology (?):

Described by: HEMU

Subsampled by:

D7-6

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): ~20 Pebbles to small cobbles Location: W. End of Carmine Ridge [redacted]

Sample Id: D7-7 Weight (kg): ~1 Depth (m): 1500-1450

D7-7

Mn Crust Description

Surface Texture: Current controled botryoids - fine sand paper texture

eroded pebbles Not measured

Mn Crust Thickness (mm):

Min: 8 Max: 42 Ave: 30

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
Most crusts - 1	28	42	35	0-20 - Black - mc dense Halic w/ carcass mud. 20-42 - Black. Porous
2				
3				
4				
5				
6				

Comments and XRD Mineralogy:

Misc. crust pieces

Substrate Description

Rock Type:

Description:

Biology (?): encrusting forams

Subsample No.

D7-7-1	0-20mm	174. gm	total
	CC, Pt, Au	136 gm	
	REE	38	
	XRD	—	
D7-7-2a	0-32mm	124.6 gm	total
	CC, Pt, Au	101 gm	
	REE	22.2 gm	
	XRD	—	
D7-7-2b	CC, Pt, Au	0-12 MM	84 gm
	REE, XRD	0-12 mm	5 gm
D7-7-2c	CC, Pt-Au	12-32 mm	44.5 gm
	REE, XRD	12-32 mm	5.5 gm

Described by: MS

Subsampled by: MS