

ONE OF 32

DREDGES

CRUISE I.D.: F288HW

DREDGE I.D.: D-32

ROCKS RECOVERED: 200 Kg
lithified mud
beach rock coral

APPROXIMATE RECOVERED WEIGHT (KG): 200

% RECOVERY WITH CRUST:

NUMBER OF ROCKS SAVED:

APPROXIMATE SAVED WEIGHT (KG): 200 Kg

TIME/DEPTH/LOCATION NOTES:

1703 - 1555 m

20° 38.83'	20° 40.67'
155° 43.99'	155° 44.56'
on bottom	off bottom

GENERAL DESCRIPTION OF RECOVERY:

lithified mud and coral reef debris.
beach rock and coral coated by MnO₂
in places. Coral, algae, pelecypods,
gastropods.

SAMPLING OBJECTIVES:

To verify if GLORIA images here
are coral reefs
Mission successful!

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 10x10x5 (cm) Location: _____

Sample Id: D32-1 Weight: 2.3 (kg) Depth: _____ (m)

Mn Crust Description

Surface Texture: Thin hydrogenetic crust, microbotryoidal texture, sediment trapped between botryoids

thin hydrogenetic crust, microbotryoidal texture, sediment trapped between botryoids

Mn Crust Thickness (mm):

Min: 1mm Max: 3mm Ave: 1.5mm

Layers (Outer to Inner)(mm):

Min	Max	Ave	Texture & Color
1.		1.5	dense toporous usual texture
2.			
3.			
4.			
5.			
6.			



**F2-88-HW
D32-1**

Comments and XRD Mineralogy:

Dense hydrothermal Mn metallic to submetallic in a sediment substrate. Hydrothermal Mn has a semblance of layering but main textural feature is the appearance that Mn is migrating up through the substrate

ANAL

Subsample Number	Analysis	Layer Thickness-Explanation
D32-1A	CC Bulk crust	4.85 gm
*D32-1B	CC dense metallic layer hydrothermal	19.7 gm
D32-1C	CC Bulk Hydrothermal	

DPTS - all of 200 Ye. sent to NRC for the ...

Substrate Description

Rock Type: Mudstone/siltstone?

Description:

Substrate is RUST colored (iron rich?)

* 1B sample is dense hydrothermal Mn from all points of crust to half

Bottom of sample porous

Biology?: some encrusting forams

XRD SAIDIC really interesting ...

PEE on Crust possible? What! I barely got enough for CC chemistry!

Described By: JSM

Subsampled By: JSM

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 10x8.5x5 (cm) Location: _____

Sample Id: D32-2 Weight: 0.2 (kg) Depth: _____ (m)

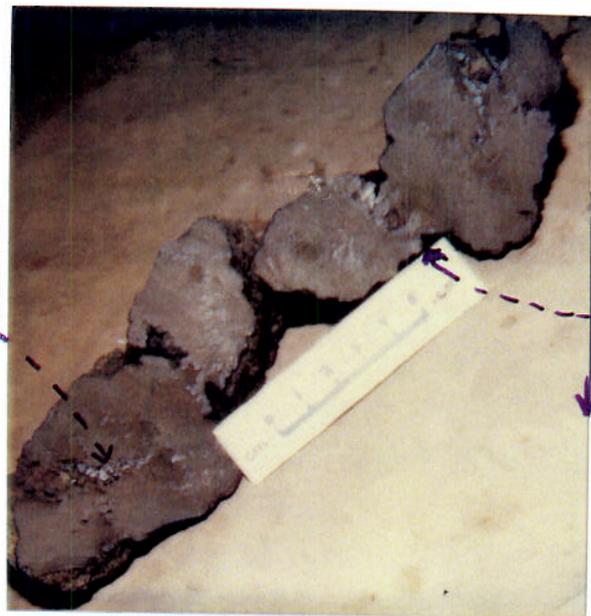
Mn Crust Description

Surface Texture: Botryoidal + porous yellow brown colored sediment coating it

Botryoidal + porous yellow brown colored sediment coating it

Mn Crust Thickness (mm):
Min: <1mm Max: 1mm Ave: _____

Layers (Outer to Inner)(mm):			
Min	Max	Ave	Texture & Color
1.			
2.			
3.			
4.			
5.			
6.			



F2-88-HW
D32-2

Comments and XRD Mineralogy:
Dense Mn in burrows and along what may have been a fracture, metallic to submetallic
Very thin hydrogenetic crust on top of sample

Subsample Number	Analysis	Layer Thickness-Explanation

Dense Mn in burrows and along what may have been a fracture, metallic to submetallic
Very thick hydrogenetic crust on top of sample

Substrate Description
Rock Type: Sand / Sandstone w/ Mn cement

Description:
Bioturbated sandstone w/ Mn cement.
Soft sediment in areas where no Mn cement.
Burrowing seems to indicate top of sample different from the hydrogenous crust. Perhaps overturned?

Bioturbated sandstone w/Mn cement.
Self sediment in areas where no Mn cement. Burrowing seems to indicate top of sample different from the hydrogenous crust. Perhaps overturned?

Biology?: encrusting forams

Described By: JSB Subsampled By: _____

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 7x6x6.5 (cm) Location: _____

Sample Id: D32-3 Weight: 0.2 (kg) Depth: _____ (m)

Mn Crust Description

Surface Texture: porous, granular. some areas of micro-botryoids, sediment pockets on outside

porous, granular. some areas with micro botryoids, sediment pockets on outside

Mn Crust Thickness (mm):
Min: _____ Max: _____ Ave: _____

Layers (Outer to Inner)(mm):
Min Max Ave Texture & Color

1. no discernible hydrothermal Fe/Mn
2. _____
3. _____
4. _____
5. _____
6. _____



F2-88-HW
D32-3

Comments and XRD Mineralogy:
Mn dense metallic to submetallic cement/matrix hydrothermal

Subsample Number Analysis Layer Thickness-Explan

Mn dense metallic to submetallic cement/matrix hydrothermal

D32-3 CC: Bulk sample Hydrothermal smaller than

Substrate Description
Rock Type: Mudstone/siltstone
Mudstone/siltstone

Description:
Iron colored soft sediment/clay between areas of dense Mn
From colored soft sediment/clay between areas of dense Mn

Biology?: don't think so

Described By: JSM Subsampled By: _____

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 8 x 3 x 2.5 (cm) Location: _____

Sample Id: D32-4 Weight: < .1 (kg) Depth: _____ (m)

Mn Crust Description

Surface Texture: Top botryoidal to grainy, bottom
sediment coated granular

Top botryoidal to grainy, bottom sediment coated granular

Mn Crust Thickness (mm):

Min: _____ Max: _____ Ave: _____

Layers (Outer to Inner)(mm):

Min Max Ave Texture & Color

1. may have very thin hydrogenous coating

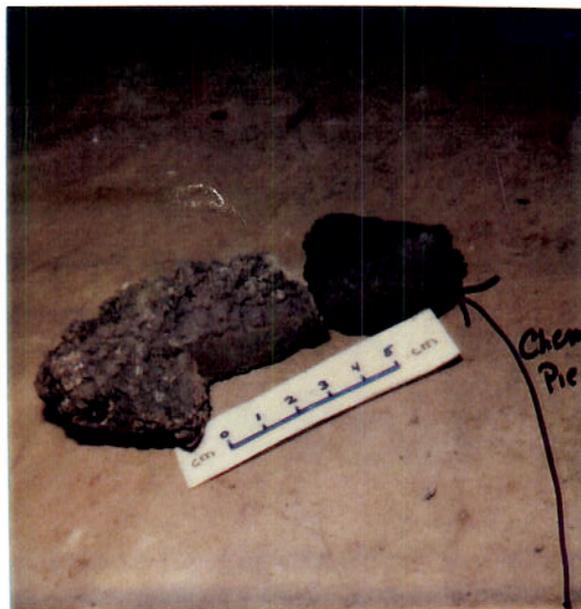
2. **may have very thin hydrogenous coating**

3. _____

4. _____

5. _____

6. _____



F2-88-HW
D32-4

This piece not in picture

Comments and XRD Mineralogy:

Sediment w/ Mn cement, Mn dense metallic
to sub-metallic. Botryoids inside the
result of hydrothermal Mn extending
beyond the sediment wake interface, or
sediment wash off of them?

Sediment w/ Mn cement. Mn dense metallic.
Botryoids
maybe the result of hydrothermal Mn extending beyond the sediment wake interface, or sediment wash off of them?

ANAL

Subsample Number Analysis Layer Thickness-Explanat

D32-4 CC - Bulk

Substrate Description

Rock Type: Sand or Siltstone

Description:

Mn cemented

Biology ?:

impression of something unknown on
bottom of bigger piece, presumably of
biologic origin- probably silico-sponge

impression of something unknown on bottom of bigger piece, presumably of biologic origin- probably silico-sponge

Described By: JSM

Subsampled By: JSM

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 7x6x4 (cm) Location: _____

Sample Id: D32-5 Weight: 0.1 (kg) Depth: _____ (m)

Mn Crust Description

Surface Texture: One side has botryoidal texture w/ sediment smothering botryoids, other side porous granular mostly sediment

One side has botryoidal texture w/ sediment smothering botryoids, other side porous granular mostly sediment

Mn Crust Thickness (mm):

Min: _____ Max: _____ Ave: _____

Layers (Outer to Inner)(mm):

Min Max Ave Texture & Color

1. may have some hydrogenous material

2. _____

3. _____

4. _____

5. _____

6. _____



F2-88-HW
D32-5

Comments and XRD Mineralogy:

Dense hydrothermal Mn, metallic to submetallic, cementing sand grain.

Dense hydro thermal Mn, metallic to submetallic, cementing sand grain

ANALY

Subsample Number Analysis Layer Thickness-Explanat

Substrate Description

Rock Type: Sand/siltstone w/ Mn cement

sand/siltstone w/ Mn cement

Description:

Biology ?:

Described By: JSM

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 11x7x3 (cm) Location: _____

Sample Id: D32-6 Weight: < 1 (kg) Depth: _____ (m)

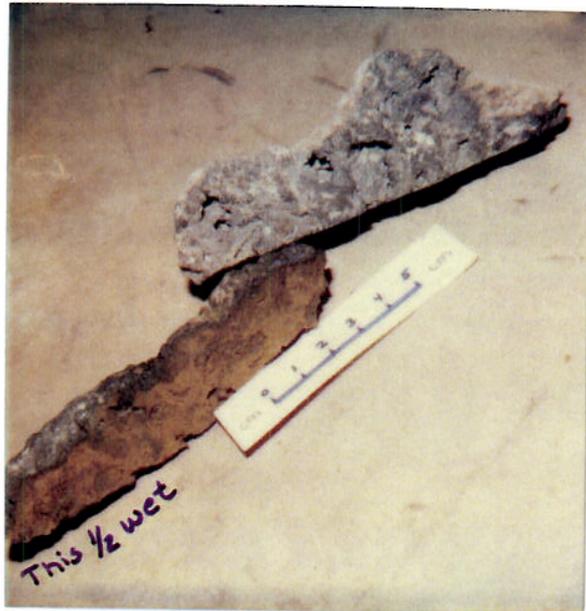
Mn Crust Description

Surface Texture: Irregular wooden surface

Mn Crust Thickness (mm):
 Min: < 1mm Max: 1mm Ave: 1mm

Layers (Outer to Inner)(mm):

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



F2-88-HW
D32-6

Comments and XRD Mineralogy:
Small botryoids to micro-botryoids on
crust surface

ANAL

Subsample Number	Analysis	Layer Thickness-Explanat
<u>D32-6</u>	<u>OC 2/21/88</u>	<u>Siltstone analyzed for Mn crust</u> <u>for Mn crust</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Substrate Description

Rock Type: Bioturbated Siltstone, yellowish brown
color

Description:
Biopores filled with brown clay/mud

Biology?: Microbial mats, small siltstone

Described By: JSM

Subsampled By: JSM

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 5.5 x 4.5 x 2.5 (cm) Location: _____

Sample Id: D32-8 Weight: <1 (kg) Depth: _____ (m)

Mn Crust Description

Surface Texture: botryoidal on edges, micro botry. and granular on top

botryoidal on edges, micro botry. and granular on top

Mn Crust Thickness (mm):

Min: 1mm Max: 1.5mm Ave: 1mm

Layers (Outer to Inner)(mm):

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



F2-88-HW
D32-8

Comments and XRD Mineralogy:

Thin hydrogenous Mn crust

ANAL

Subsample Number	Analysis	Layer Thickness-Explanation
<u>D32-8</u>	<u>DPT's</u>	<u>(should show intergrading contact of hydrothermal Mn & Mn crust)</u>

Substrate Description

Rock Type: Mn cementing clays and Fe hydroxides
Some very altered clastic

Description:

Layer of dense hydrothermal Mn up to 2mm thick, Mn seems to have grown into downward not upward. Layer of Fe rich (clay?) above the hydrothermal Mn, hydrogenous crust above that

Biology ?:

XRD of Fe hydroxides is dense Mn

Described By: JSM

Subsampled By:

