Dredge 9

HUNTERS BANK

D9

Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D9-1						X	X			
-2										
-3										
-4			X X		X	X	X			
-5					X	X	(2) X			
6						X	X			
7						X	X			
8										
9										
10										
11							X		X	
12							X		X	
13										
14										

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 60 x 20 x 10 Location: Hunters BANK

Sample Id: D9-1 Weight (kg): 10 Depth (m): 820-M60

Mn Crust Description

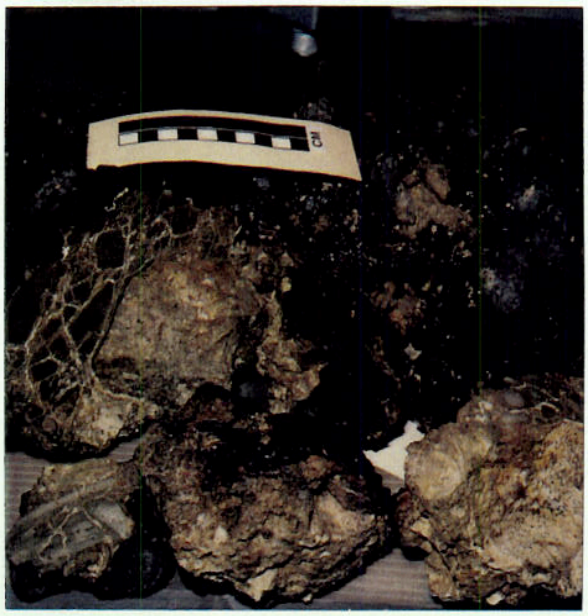
Surface Texture: Smooth Patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D9-1

Comments and XRD Mineralogy:

Su

D9-1 T.S.

D9-1A XRD cement

50% trORDT

50% MS G-S

Substrate Description

Rock Type: Volcanic Breccia

Subangular to Subrounded.

Clasts of Fine grained, Dark Brown, vesicular Basalt

Slightly Magnetic

Description: The Basalt clasts are fractured and then cemented together with a calcite + quartz + serpentine cement (Pale yellow with black specks Trouanc) The vesicles contain possible serpentine crystals, quartz and other altered minerals. Fe stain on some vesical walls

Biology (?): Encrusting forams possible sea fan or other attatching biology

Described by: G.S.

Subsampled by: G.S.

SAMPLE DESCRIPTION

3

Cruise Id: F11-90-CP Size (cm): Pebbles Location: Hunters Bank

Sample Id: D9-2 Weight (kg): 0.1 Depth (m): 850-760

Mn Crust Description

Surface Texture: patina in places

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: Serpentinized clastic rocks - volcaniclastic SS

Description: quartz green fine-grained

Biology (?):

Described by: Ahn-HEIN

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 4 Pebbles Location: Hunters Bank

Sample Id: D9-3 Weight (kg): 0.4 Depth (m): 850-960

Mn Crust Description

Surface Texture: Patina in places

Mn Crust Thickness (mm):

Min: — Max: — Ave: —

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Partly encrusted by a thin Mn patina

Subsampl

Substrate Description

Rock Type: Breccia

½ USGS
½ NORD

Description:

- Calcite Cement in some, crushed rock-serpentine matrix in others
- Basalt clasts contain magnetite, also epidote + serpentine clasts
- Basalts are highly altered. — also many lime grains
  red-brown - yellow - Fe-oxide alteration

Biology (?):

Described by: Ahn

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): pebbles & cobbles Location: Hunters Bank

Sample Id: D9-4 Weight (kg): 1 Depth (m): 850 - 760

Mn Crust Description

Surface Texture: smooth patina

Mn Crust Thickness (mm):

Min: — Max: — Ave: —

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

- encrusted by a thin Mn-layer

Subsa

D9-4-1 TS (80 gms) hydrothermally altered Rock

OC, PT, Au

Substrate Description

Rock Type: Basalt Breccia w/ Fe-oxide cement or Cataclastic hydrothermally altered → yellows, browns, reds

Description: Vesicles

- fine manganite veins occur.
- fine calcite veins
- some reddish brown parts occur – hydrothermally altered

Some basalt altered to blue-gray color

60% USGS

40% NORDI

Biology (?):

Described by: Ahn

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 10x7x6 Location: Hunters Bank

Sample Id: D9-5 Weight (kg): 0.6 Depth (m): 850 ~ 760

D9-5

Mn Crust Description

Surface Texture: Smooth Patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

· partly encrusted by Mn-crust

Sub

D9-5A T.S. (33 g)
D9-5A OC Bulk BASALT
D9-5B XRD vesicle fill

Substrate Description

Rock Type: Vesicular basalt. brown

Description: · Various sizes of vesicles and fractures are coated by gtk and filled with radiating fine fibrous white minerals (zeolites?)
· fine magnetites are disseminated

Biology (?):

Described by: Aho

Subsampled by: Aho - C. Silfein?

O_2 + C isotopes on vesicle Fill

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): Pebble & Cobble Location: Hutons Bank

Sample Id: D9-6 Weight (kg): 0.4 Depth (m): 850-760

D9-6

Mn Crust Description

Surface Texture: smooth to granular Patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

- partly encrusted by a thin Mn layer

Su

D9-6A TS

D9-6B XRD vesicle fill

Substrate Description

Rock Type: Vesicular basalt

Description:

- Highly altered
- vesicles and fractures are filled with calcite
- Fine magnetites are disseminated.

Biology (?):

Described by: Ahn

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 9 Pebbles Location: Hunters Bank

Sample Id: D9-7 Weight (kg): 0.7 Depth (m): 850-760

D9-7

Mn Crust Description

Surface Texture: smooth Patina in places

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Most samples are encrusted by a thin Mn-crust

Su

D9-7-1 TS
XRD

Substrate Description

Rock Type: small pebbly Volcaniclastic Sandstone

Description: • fractures are filled with calcite veins.
• greenish embedded minerals (prehnite?) are embedded.
• magnetites are disseminated.
• some embedded minerals are altered to brown

small pebble to coarse-sand-sized pyroxene-plagioclase grains in fine-sand to silt crushed rock fragments

½ USGS
½ KORDI

Biology (?):

Described by: Ahn

Subsampled by: [illegible]

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 2.5X 3.5 / 1.5X 2.5 2 pebbles Location: Hunters Bank

Sample Id: D9-8 Weight (kg): 45 gms Depth (m): 850-760

Mn Crust Description

Surface Texture: Smooth and patina

NO PHOTO

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Samples are encrusted by a thin Mn-crust.

Analyses

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

Substrate Description

Rock Type: Wavy fracture and basalt.

Description: . magnetite are disseminated
. Pin areas are heavily altered to [illegible]
[illegible]
. Some vesicles are filled with limonite and some greenish mineral.

Biology (?):

Described by: [illegible]

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): Pebbles Location: Hunters Bank

Sample Id: D9-9 Weight (kg): <0.1 Depth (m): 850-760

Mn Crust Description

Surface Texture:

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

No Photo

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Analyses

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

Substrate Description

Rock Type: Pumice

Description:

Biology (?):

Described by:

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 6 V. LARGE Cobbles to small boulders Location: Hunters Bank

Sample Id: D9-10 Weight (kg): 10-20 ? Depth (m): 850 - 760

Mn Crust Description

Surface Texture: Patina - patchy

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-10

Comments and XRD Mineralogy:

all Calcite

Substrate Description

Rock Type: Framework Coral limestone (FANlike)

Description: Fiberous coral colony. With borings occasionally cutting the surface + interior (POROUS)

round + chambered corals

Biology (?): Worm tubes

BASES of stemed organisms

Described by: G.S

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 20 coral fragments Location: Hunters BANK

Sample Id: D9-10 Weight (kg): 3 Kgs Depth (m): 850-960

Mn Crust Description

Surface Texture: Patina - smooth (Patchy)

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-10

Comments and XRD Mineralogy:

all Calcite

Sub

Substrate Description

Rock Type: Colonial Coral Fragments - Framework Corals

Description: Various Kinds of corals. Branching + colonial or Fan type Branching Sub rounded to subangular

Biology (?): Encrusting Forams Possible crinoid's stem attachment

Described by: G.S

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 26x14x11 Location: Hunters Bank

Sample Id: D9-11 Weight (kg): ~5 Depth (m): 850-1600

Mn Crust Description

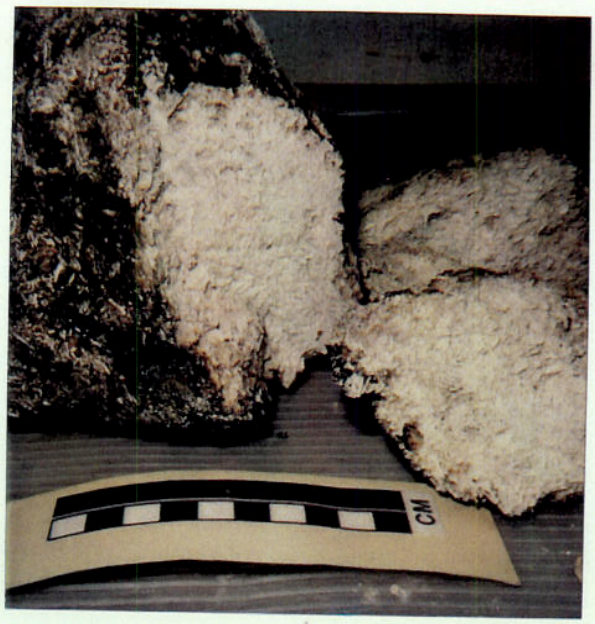
Surface Texture: PATCHY SMOOTH PATINA

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D9-11

Comments and XRD Mineralogy:

D9-11 XRD

D9-11 PALEO

Substrate Description

Rock Type: Halameda limestone (LAGOONAL facies)

Description: clastic clast supported limestone (Halameda) fragments + coral fragments are subrounded ~~with~~ moderately cemented. Porous

Biology (?):

Described by: G.S.

Subsampled by: G.S.

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 5 cobble sized fragments Location: HUNTERS BANK

Sample Id: D9-12 Weight (kg): 1 Depth (m): 850 - 760

Mn Crust Description

Surface Texture: Very minor patina - patchy

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Su

D9-12 XRD

D9-12 PALEO

Substrate Description

Rock Type: Clastic Limestone

Description: poorly sorted clastic limestone! coral fragments + shell fragments Clast supported with calcite cement. Porous - moldic porosity

Biology (?): none

Described by: G.S.

Subsampled by: G.S.

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): Pebble to cobble Location: Hunters Bank

Sample Id: D9-13 Weight (kg): 3.4 Depth (m): 850-700

Mn Crust Description

Surface Texture: one or two pieces have a patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-13

Comments and XRD Mineralogy:

Subs

Substrate Description

Rock Type: Coral Rubble - Gravel

Description: Subrounded to Subangular Coral fragments Gastropod + mollusk shells

Biology (?): None

Described by: GS.

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): Pebble to cobble Location: Hunters Bank

Sample Id: D9-#4 Weight (kg): ~3-5 Depth (m): 850-7100

Mn Crust Description

Surface Texture: Smooth Patina

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 debris

Description: Etched or recrystallized coral fragments. Various kinds of corals - subrounded to subangular.

Biology (?): Bases of stock organisms

Described by: G.S.

Subsampled by: