

Chapter 6, Table 4. Stratigraphic ranges of planktonic foraminifers at Site 1038 and additional information on fossil condition, zone, age, lithologic unit, and a description of the sample lithology and constituents of the sand-sized fraction.

Core, section, interval (cm)	Top depth (mbsf)	Bottom depth (mbsf)	Geologic age	Zone	Group abundance	Preservation	Dissolution	Overgrowth	Bathymetry	Sample preparation	<i>Beella digitata</i>	<i>Globigerina bulluloides</i>	<i>Globigerina bulluloides umbilicata</i>	<i>Globigerina clarkii</i>	<i>Globigerina glutinata</i>	<i>Globigerina ioua</i>	<i>Globigerina ovata minuta</i>	<i>Globigerina ovata ovata</i>	<i>Globigerinoides ruber</i>	<i>Globorotalia inflata</i>	<i>Globorotalia scitula</i>	<i>Globorotaloides heugenus</i>	<i>Neoglobobulimina pachyderma (left-coiling)</i>	<i>Neoglobobulimina pachyderma (right-coiling)</i>	<i>Orbulina bilobata</i>	<i>Orbulina suturalis</i>	<i>Orbulina universa</i>	<i>Turborotalita quinqueloba</i>	Environment	Description of sand-sized fraction	
169-1038A-8R-CC, 17-19	67.57	67.59	—	Not assignable	Few	Poor	Strong	Brown tint	Neritic	Sieve	R										R	R						R	Semi-lithified turbiditic mud	Abundant lithified silt lumps with mica, pyritized organic matter, few radiolarians, planktonic and benthic foraminifers that are brown and often flattened and/or distorted in shape.	
9R-CC, 10-12	76.93	76.95	—	Not assignable	Few	Poor	Strong	Brown tint	—	Sieve	R											R							Sieve	Semi-lithified turbiditic mud	Cemented silt lumps, mica, strongly altered foraminifer assemblage.
11R-CC, 11-13	95.51	95.53	—	—	Rare	Poor	Strong	Brown tint	—	Sieve																			Sieve	Cemented turbiditic sand	Mineral sand frosted with white cement.
12R-CC, 17-19	105.07	105.09	—	—	—	—	—	—	—	Sieve																			Sieve	Turbiditic sand	Mineral sand frosted with white cement; deeply colored, shapeless foraminifers.
169-1038B-1R-1, 0-2	0.00	0.02	—	—	Barren	—	—	—	—	Sieve																			Sieve	Hydrothermal sediment	Tar balls, pyrrhotite, brown volcanic glass, micas, anhydrite crystals, white mud lumps, and bladed crystal masses of pink, lavender, yellow, and clear.
2R-CC, 16-18	10.56	10.58	—	—	Barren	—	—	—	—	Sieve																			Sieve	Sand-sized drilling rubble	Coarse sand of drilling pebbles made of sulfides including pyrrhotite, gypsum or anhydrite, lithified lumps of khaki and white silt and clay.
3R-CC, 17-19	14.57	14.59	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Sulfide and anhydrite chunks, khaki-colored semi-lithified lumps of silt and clay.
4R-CC, 36-38	24.56	24.58	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Lithified chunks of clay with pyrite crystals and gypsum(?), pyrrhotite?, and khaki-colored lumps of silt and clay.
5R-CC, 13-15	34.54	34.56	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	White semi-lithified silt and clay lumps.
6R-1, 73-75	44.33	44.35	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	White semi-lithified clay and silt lumps, trace of pyrite.
7R-CC, 14-16	54.90	54.92	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	White semi-lithified clay and silt lumps.
8R-CC, 17-19	64.26	64.28	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	White semi-lithified lumps of silt and clay, with minor mica, orange earthy flakes, and sulfide.
9R-CC, 11-13	73.03	73.05	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	White semi-lithified silt lumps with mica flakes and pyritized organic matter.
11R-CC, 11-13	91.94	91.96	—	—	Barren	—	—	—	—	Sieve																			Sieve	Turbidite sand	White very fine mineral sand frosted with white material and mica.
12R-1, 34-36	101.54	101.56	—	—	Barren	—	—	—	—	Sieve																			Sieve	Turbidite sand	White mineral silty sand, grains frosted with white. Some mica and earthy white lumps.
13R-CC, 17-19	112.70	112.72	—	—	Barren	—	—	—	—	Sieve																			Sieve	Lithified turbiditic silt	Lithified silt lumps, some are white, and some are khaki colored.
169-1038C-1R-1, 0-2	0.00	0.02	—	—	Barren	—	—	—	—	Sieve																			Sieve	Sulfide cap rock	Mineral sand, sulfides including pyrrhotite, tar balls, unusual minerals, and radiolarians.
2R-CC, 11-13	14.71	14.73	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified white silt lumps with grains of sulfide.
3R-CC, 12-14	23.67	23.69	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	White semi-lithified silt lumps with sulfide grains and anhydrite?
4R-CC, 5-7	32.86	32.88	—	—	Barren	—	—	—	—	Sieve																			Sieve	Turbiditic sand	Very fine white sand with brown mica and a little sulfide.
169-1038D-1R-1, 0-2	0.00	0.02	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps with minor mica and sulfide grains.
1R-CC, 15-17	1.61	1.63	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps with minor sulfide and anhydrite.
2R-CC, 12-14	15.35	15.37	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps.
3R-CC, 17-19	25.17	25.19	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps with minor anhydrite and sulfide.
4R-CC, 22-24	34.42	34.44	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps with minor sulfide (pyrrhotite) and anhydrite.
169-1038E-4R-CC, 16-18	33.21	33.23	—	—	Rare	Poor	Strong	Brown tint	—	Sieve												R							Sieve	Semi-lithified turbiditic silt	Semi-lithified silt lumps with mica, minor sulfide, rare planktonic foraminifers, and few benthic foraminifers both of which are chalky and some are discolored. Light orange pollen, black stuff that looks like vascular plant matter, and framboidal pyrite.
169-1038F-1R-CC, 10-12	0.10	0.12	Holocene	CD1	Rare	Poor	Strong	Brown tint	Abyssal	Sieve		R										R	R		R	R			Sieve	Turbiditic mud	Very little in the sand-sized fraction. Framboidal pyrite dominates, some may be pyritized organic matter, with mineral grains, radiolarians, planktonic and benthic foraminifers.
2R-CC, 10-12	11.31	11.33	—	—	Rare	Poor	Strong	Brown tint	Neritic	Sieve																			Sieve	Turbiditic mud	Pyritized material most abundant, chalky benthic foraminifers, some discolored planktonic foraminifers that are very hard to identify due to their poor condition.
3R-CC, 18-20	23.37	23.39	—	—	Barren	Poor	Strong	Brown tint	Neritic	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps with chalky and discolored benthic foraminifers, rare diatoms, and radiolarians.
4R-CC, 14-16	29.16	29.18	Holocene	CD1	Few	Poor	Strong	Brown tint	Neritic	Sieve	R																		Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps, framboidal pyrite, mica, and discolored foraminifers.
169-1038G-3H-CC, 15-17	32.75	32.77	—	—	Rare	Poor	Strong	Brown tint	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Cemented and recrystallized fine sand lumps, black organic matter, very gassy core! Some foraminifers are clearly recrystallized with crystals growing larger!
4H-CC, 52-54	42.24	42.26	—	—	Barren	—	—	Brown tint	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified fine sand and silt lumps with rare brown tinted benthic foraminifers, a few crystal masses, rare framboidal pyrite, and white frosting on some pieces.
5H-CC, 49-51	48.66	48.68	—	—	Rare	Poor	Strong	Crust	—	Sieve											R	?							Sieve	Semi-lithified turbiditic sand	Cemented and recrystallized silt and fine sand lumps with a trace of mica, clear sand grains, trace of framboidal pyrite, trace of blackened organic matter? recrystallized white planktonic foraminifers in the 63-150 micron fraction.
6X-CC, 22-24	56.50	56.52	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Sand and silt cemented into sand-sized lumps, minor sulfide masses, brown mica, and earthy orange material in very fine sand fraction.
7X-CC, 36-38	66.42	66.44	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Mineral sand and silt cemented into sand-sized lumps with pyrite lumps and pyritized <i>Globobulimina pacifica</i> .
8X-CC, 37-39	71.04	71.06	Not assignable	Common	Common	Poor	Strong	Crust	Mixed	Sieve	A											?							Sieve	Semi-lithified turbiditic sand	Mineral sand cemented into sand-sized lumps, with fine sand as individual grains, brown mica, and highly recrystallized benthic and planktonic foraminifers in very poor condition.
9X-CC, 32-34	80.02	80.04	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Cemented mineral sand with white frosting, brown mica, and green minerals in the very fine sand.
10X-CC, 35-37	90.13	90.15	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Semi-lithified very fine sand and silt lumps, pyritized foraminifers in poor condition (<i>G. pacifica</i>), mica, and wood(?) pieces that look pyritized, a sphalerite(?) crystal.
11X-CC, 19-21	99.09	99.11	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Semi-lithified lumps of silt and fine sand, and brown mica.
13X-CC, 18-20	118.38	118.40	—	—	Barren	—	—	—	—	Sieve																			Sieve	Turbidite sand	Medium sand.
14X-CC, 26-28	128.06	128.08	—	—	Barren	—	—	—	—	Sieve																			Sieve	Turbidite sand	White mineral sand with rare heavy minerals.
15X-CC, 31-33	137.71	137.73	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic sand	Semi-lithified sand with white frosting, anhydrite(?) crystals, and pyrite.
169-1038H-1X-1, 0-2	0.00	0.02	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Semi-lithified silt and clay lumps, a worm tube and two organic pieces, rare orange radiolarians, framboidal pyrite, brown mica, orange earthy bits, and black organic matter(?).
1X-CC, 8-10	5.03	5.05	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Lithified silt and clay lumps, trace of sulfide, mica, large 1-cm pieces failed to disaggregate.
2X-CC, 28-30	15.08	15.10	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic mud	Recrystallized mud lumps with gypsum or anhydrite(?), and tiny sulfide lumps that are crystalline in form rather than framboidal.
3X-CC, 19-21	25.73	25.75	—	—	Barren	—	—	—	—	Sieve																			Sieve	Semi-lithified turbiditic silt	Silt semi-lithified into sand-sized lumps and very fine sand-sized pyrite crystals.
4X-CC, 33-35	35.75	35.77	—	—	Barren	—	—	—	—	Sieve	R																		Sieve	Semi-lithified turbiditic sand	Mineral sand with white cement and common foraminifers, brown and green micas, and pyrrhotite.
5X-CC, 32-34	47.77	47.79	Not assignable	Rare	Rare	Poor	Strong	Brown tint	Mixed	Sieve																			Sieve	Semi-lithified turbiditic mud	Silt and clay lithified into sand-sized lumps, mica,