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THE NATIONAL MARINE FISHERIES SERVICE



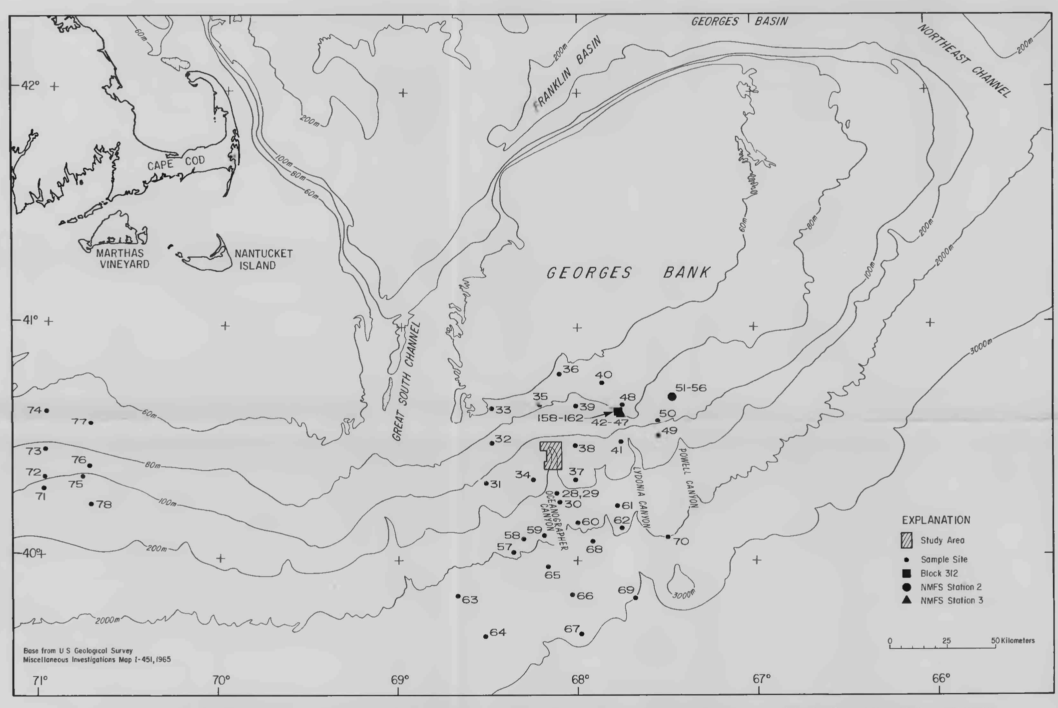



Figure 1.—Map of the New England Continental margin showing study area in Oceanographer Canyon (shaded) and localities of shelf, slope, and rise sediment samples (table 1). See sheet 3 for localities of sediment samples in northern Oceanographer Canyon

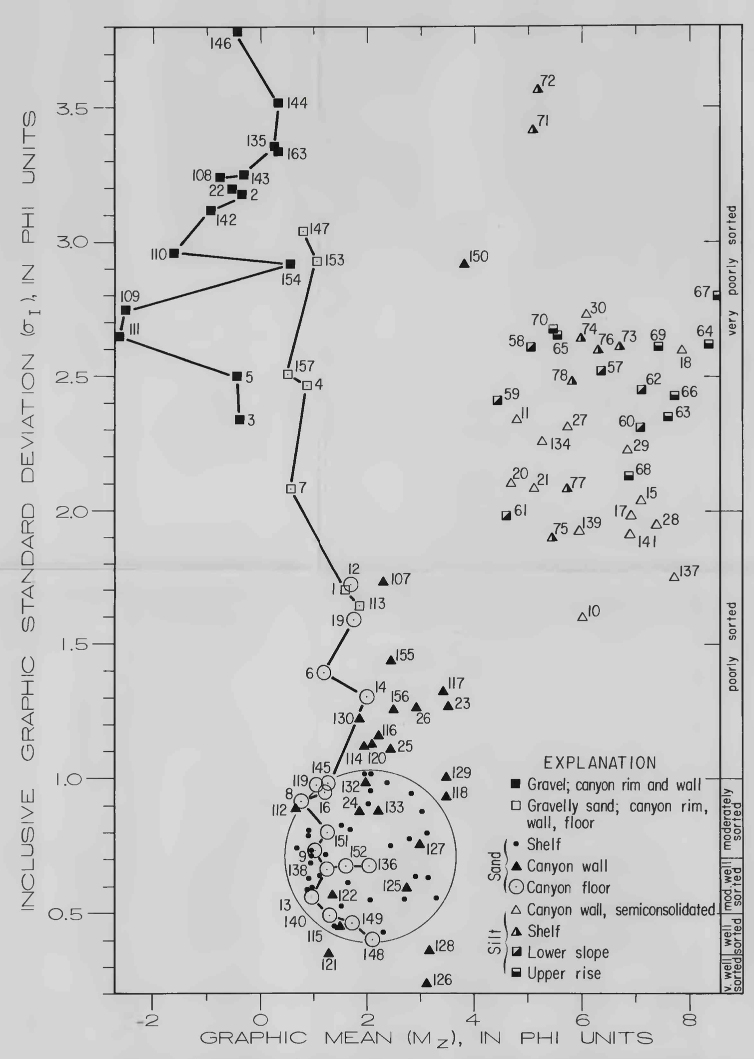



Figure 2.—Scatter plot of graphic mean versus inclusive graphic standard deviation for sediment samples from Oceanographer Canyon and from the Continental Shelf, Slope, and Rise off New England. Statistical parameters are those of Folk (1980). Shelf sand samples enclosed by the circle are not numbered. See figure 1 and table 1 for localities and source of samples.

Table 1.-- *Description of sediment samples from Oceanographer Canyon and the Continental Shelf, Slope, and Rise off New England*
[Source of data for samples 30-41, 48-50, and 57-78 is Hathaway (1971)]

| Sample Number | Canyon Dive Number | Depth (meters, approx.) | Latitude North | Longitude West | Loran-C Time-delays (9960 chain) | Remarks |
|---|---|---|---|---|---|---|
| 1 | 20 | 157 | 40°29.65' | 68°10.59' | 13596.5, 43412.3 | Sediment scraper; JSL 1062-1; gravelly sand in siltstone talus, north wall. |
| 2 | 20 | 299 | 40°29.47' | 68°10.03' | 13594.7, 43411.0 | do ; JSL 1062-2; gravel, base of north wall. |
| 3 | 19 | 148 | 40°30.18' | 68°10.32' | 13593.3, 43415.4 | do ; JSL 1063-1; gravel, north rim. |
| 4 | 19 | 148 | 40°29.67' | 68°11.10' | 13598.6, 43412.8 | do ; JSL 1063-2; gravelly sand, north rim. |
| 5 | 19 | 148 | do | 68°10.57' | 13596.4, 43412.6 | do ; JSL 1063-3; gravel, north rim. |
| 6 | 15 | 282 | 40°29.35' | 68°10.14' | 13595.7, 43410.3 | Sediment grab; JSL 1065-1; sand, canyon-floor. |
| 7 | 15 | 290 | 40°29.47' | 68°10.12' | 13595.1, 43411.0 | do ; JSL 1065-2; gravelly sand, base of north wall. |
| 8 | 15 | 290 | 40°29.44' | 68°10.16' | 13595.4, 43410.9 | do ; JSL 1065-3; sand, canyon-floor dune crest. |
| 9 | 15 | 270 | 40°29.33' | 68°10.44' | 13597.1, 43410.4 | do ; JSL 1065-4; sand, canyon-floor dune crest. |
| 10 | 15 | 265 | 40°29.31' | 68°10.49' | 13597.4, 43410.3 | do ; JSL 1065-5A; silt, lower wall. |
| 11 | 15 | 265 | do | do | do do | do ; JSL 1065-5B; silt, lower wall. |
| 12 | 15 | 252 | 40°29.38' | 68°10.70' | 13598.1, 43410.8 | do ; JSL 1065-6; sand, canyon-floor. |
| 13 | 15 | 242 | do | 68°10.82' | 13598.6, 43410.9 | do ; JSL 1065-7; sand, canyon-floor dune crest. |
| 14 | 11 | 360 | 40°28.29' | 68°09.14' | 13595.3, 43403.4 | Sediment scraper, ALVIN 1034-1; sand, canyon-floor. |
| 15 | 11 | do | do | do | do do | do ; do ; silt fragments in canyon-floor sand. |
| 16 | 11 | 377 | 40°28.34' | 68°09.02' | 13594.6, 43403.6 | do ; ALVIN 1034-2; sand, canyon-floor dune, stoss face. |
| 17 | 11 | do | do | do | do do | do ; do ; silt fragments in canyon-floor sand. |
| 18 | 11 | 308 | 40°29.18' | 68°09.44' | 13593.2, 43408.9 | Core top; ALVIN 1034-5; silt from outcrop, base of east wall. |
| 19 | 5 | 622 | 40°23.92' | 68°07.98' | 13606.9, 43376.7 | Sediment scraper; ALVIN 1036-1; sand, canyon-floor dune, lee face. |
| 20 | 5 | 528 | 40°24.15' | 68°08.27' | 13607.4, 43378.2 | Core top; ALVIN 1036-2; silt, outcrop on west wall. |
| 21 | 5 | do | do | do | do | Core bottom, 20 cm below top; ALVIN 1036-2; silt, outcrop on west wall. |
| 22 | 4 | 201 | 40°24.96' | 68°09.36' | 13609.0, 43383.6 | Sediment scraper; JSL 1066-1; gravel, west rim. |
| 23 | 4 | 310 | 40°24.68' | 68°06.85' | 13607.8, 43381.6 | do ; JSL 1066-3; sand overlying silt, west wall. |
| 24 | 6 | 228 | 40°25.22' | 68°08.96' | 13606.3, 43385.0 | do ; JSL 1067-1; sand, west wall. |
| 25 | 6 | 250 | 40°24.82' | 68°09.08' | 13608.4, 43382.7 | do ; JSL 1067-3; sand, west wall. |
| 26 | 6 | 250 | 40°24.47' | 68°09.23' | 13610.3, 43380.6 | do ; JSL 1067-4; sand, west wall. |
| 27 | 2 | 690 | [1]40°23.25' | 68°08.57' | 13612.1, 43373.0 | Core top; ALVIN 835-1; USGS 5121; silt, outcrop near base of west wall. |
| 28 | | 1125 | [1]40°17.40' | 68°07.10' | | Mechanical arm; ALVIN 836-5; USGS 5128; silt, outcrop, east wall. |
| 29 | | 1304 | [1]40°17.46' | 68°07.25 | 13627.9, 43337.7 | do ; ALVIN 1035-1; silt, base of east wall. |
| 30 | | 1460 | [1]40°14.9' | 68°06.1' | | Core; ALVIN 184; USGS 2681; silt, outcrop on west wall. |
| 31 | | 123 | 40°19.7' | 68°30.8' | | Campbell grab; USGS 1060; sand, shelf. |
| 32 | | 94 | 40°30.0' | 68°29.0' | | do ; USGS 1059; sand, shelf. |
| 33 | | 73 | 40°39.0' | do | | Dietz-LaFond snapper; USGS N151; sand, shelf. |
| 34 | | 144 | 40°20.7' | 68°15.0' | | Campbell grab; USGS 1063; sand, shelf. |
| 35 | | 85 | 40°40.0' | 68°13.0' | | Dietz-LaFond snapper; USGS N145; sand, shelf. |
| 36 | | 66 | 40°48.0' | 68°06.0' | | Smith-McIntyre grab; USGS W184; sand, shelf. |
| 37 | | 154 | 40°20.5' | 68°00.7' | | Campbell grab; USGS 1064; sand, shelf. |
| 38 | | 123 | 40°29.2' | 68°00.9' | | do ; USGS 1112; sand, shelf. |
| 39 | | 86 | 40°40.0' | 68°00.7' | | do ; USGS 1113; sand, shelf. |
| 40 | | 69 | 40°46.0' | 67°52.0' | | Smith-McIntyre grab; USGS W182; sand, shelf. |
| 41 | | 124 | 40°30.5' | 67°45.5' | | Campbell grab; USGS 1115; sand, shelf. |
| 42 | | 76 | 40°37.68' | 67°45.19' | 13452.4, 43444.0 | Sediment grab; JSL 871; sand, shelf. |
| 43 | | 76 | 40°38.03' | 67°45.28' | 13450.9, 43446.3 | Sediment scraper; JSL 1050-1; sand, shelf. |
| 44 | | 77 | 40°37.21' | 67°45.27' | 13454.2, 43441.6 | do ; JSL 1050-2; sand, shelf. |
| 45 | | 77 | 40°37.63' | 67°45.25' | 13452.4, 43444.0 | do ; JSL 1050-3; sand, shelf. |
| 46 | | 76 | 40°37.66' | 67°44.75' | 13450.1, 43443.9 | do ; JSL 1051-1; sand, shelf. |
| 47 | | 78 | 40°37.58' | 67°45.73' | 13454.7, 43444.0 | do ; JSL 1052-1: sand, shelf. |
| 48 | | 79 | 40°40.4' | 67°44.8' | | Campbell grab; USGS 1114; sand, shelf. |
| 49 | | 122 | 40°32.0' | 67°33.0' | | Smith-McIntyre grab; USGS W076; sand, shelf. |
| 50 | | 94 | 40°36.0' | do | | do ; USGS W075; sand, shelf. |
| 51 | | 89 | 40°42.81' | 67°27.98' | 13357.8, 43462.6 | Diver; JSL 868, sand, shelf. |
| 52 | | 89 | 40°42.76' | do | 13357.9, 43462.4 | Sediment scraper; JSL 1048-1; sand, shelf. |
| 53 | | 89 | 40°42.74' | 67°27.60' | 13356.1, 43462.1 | do ; JSL 1048-2; sand, shelf. |
| 54 | | 89 | 40°43.06' | 67°27.77' | 13355.5, 43464.0 | do ; JSL 1048-3; sand, shelf. |
| 55 | | 90 | 40°42.69' | 67°28.38' | 13359.6, 43462.3 | do ; JSL 1049-1; sand, shelf. |
| 56 | | 89 | 40°42.34' | 67°27.94 | 13359.2, 43460.1 | do ; JSL 1049-2; sand, shelf. |
| 57 | | 1585 | 40°02.1' | 68°21.4' | | Campbell grab; USGS 2174; silt, slope. |
| 58 | | 1445 | 40°05.6' | 68°18.0' | | do ; USGS 2173; silt, slope. |
| 59 | | 1625 | 40°06.7' | 68°11.0' | | do ; USGS 2172; silt, slope. |
| 60 | | 1830 | 40°09.8' | 68°00.0' | | do ; USGS 2178; silt, slope. |
| 61 | | 940 | 40°14.0' | 67°46.4' | | do ; USGS 2181; silt, slope. |
| 62 | | 1813 | 40°08.2' | 67°45.0' | | do ; USGS 2180; silt, slope. |
| 63 | | 2295 | 39°51.1' | 68°40.3' | | do ; USGS 2162; silt, rise. |
| 64 | | 2695 | 39°40.6' | 68°30.8' | | do ; USGS 2163; silt, rise. |
| 65 | | 2187 | 39°58.5' | 68°09.6' | | do ; USGS 2171; silt, rise. |
| 66 | | 2655 | 39°51.0' | 66°01.9' | | do ; USGS 2170; silt, rise. |
| 67 | | 2950 | 39°41.0' | 67°58.7' | | do ; USGS 2168; silt, rise. |
| 68 | | 2185 | 40°05.0' | 67°54.8' | | do ; USGS 2179; silt, rise. |
| 69 | | 2870 | 39°50.2' | 67°40.7' | | do ; USGS 2169; silt, rise. |
| 70 | | 2035 | 40°05.9' | 67°29.6' | | do ; USGS 2186; silt, rise. |
| 71 | | 120 | 40°17.0' | 71°00.0' | | Dietz-LaFond snapper; USGS N51A; silt, shelf. |
| 72 | | 93 | 40°20.0' | 70°59.5' | | Smith-McIntyre grab; USGS 2507H; silt, shelf. |
| 73 | | 89 | 40°27.0' | 71°00.0' | | Dietz-LaFond snapper; USGS N50A; silt, shelf. |
| 74 | | 73 | 40°37.0' | do | | do ; USGS N49A; silt, shelf. |
| 75 | | 97 | 40°20.5' | 70°47.0' | | Anchor dredge; USGS E1; silt, shelf. |
| 76 | | 92 | 40°23.0' | 70°45.0' | | Dietz-LaFond snapper; USGS N40A; silt, shelf. |
| 77 | | 73 | 40°34.0' | do | | do ; USGS N41A; silt, shelf. |
| 78 | | 129 | 40°13.0' | 70°44.0' | | do ; USGS N39A; silt, shelf. |
| 107 | 17 | 268 | 40°29.43' | 68°10.34 | 13596.3, 43410.9 | Sediment grab; JSL 1226-1; sand overlying silt, north wall. |
| 108 | 17 | 245 | 40°29.51' | 68°10.31' | 13595.8, 43411.4 | do ; JSL 1226-2; gravel, north wall. |
| 109 | 17 | 158 | 40°29.65' | 66°10.83' | 13597.5, 43412.5 | do ; JSL 1226-3; gravel in siltstone talus, north wall. |
| 110 | 17 | 128 | 40°29.77' | 68°10.91' | 13597.5, 43413.4 | do ; JSL 1226-4; gravel, north rim. |
| 111 | 18 | 139 | 40°30.20' | 68°10.53' | 13594.1, 43415.6 | do ; JSL 1227-1; gravel, north rim. |
| 112 | 18 | 133 | 40°30.01' | 68°10.56' | 13595.0, 43414.5 | do ; JSL 1227-2; sand, north rim. |
| 113 | 16 | 156 | 40°29.62' | 68°11.54' | 13601.0, 43412.8 | do ; JSL 1228-1; gravelly sand, north rim. |
| 114 | 16 | 154 | 40°29.49' | 68°11.82' | 13602.7, 43412.2 | do ; JSL 1228-2; sand, west arm. |
| 115 | 16 | 157 | 40°29.38' | 68°11.84' | 13603.2, 43411.5 | do ; JSL 1228-3; sand, west arm, dune crest. |
| 116 | 16 | 152 | 40°29.33' | 68°11.94' | 13603.8, 43411.2 | do ; JSL 1228-4; sand in siltstone talus, west arm. |
| 117 | 16 | 154 | 40°29.13' | 68°11.74' | 13603.8, 43409.9 | do ; JSL 1228-6; sand, south rim, canyon head. |
| 118 | 16 | 155 | 40°29.12' | 68°11.54' | 13602.9, 43409.8 | do ; JSL 1228-7; sand, south rim, canyon head. |
| 119 | 16 | 206 | 40°29.33' | 68°11.43' | 13601.6, 43411.0 | do ; JSL 1228-8; sand, canyon-floor. |
| 120 | 16 | 170 | 40°29.39' | 68°11.66' | 13602.4, 43411.5 | do ; JSL 1228-9; sand, west arm. |
| 121 | 16 | 147 | 40°29.44' | 68°11.96' | 13603.6, 43411.9 | do ; JSL 1228-10; sand, west arm, dune crest. |
| 122 | 16 | 135 | 40°29.54' | 68°12.20' | 13604.1, 43412.6 | do ; JSL 1228-11; sand, west arm, dune crest. |
| 123 | 14 | 134 | 40°28.97' | 68°11.36' | 13602.6, 43408.7 | do ; JSL 1229-1; sand, shelf. |
| 124 | 14 | 140 | 40°29.03' | 68°11.16' | 13601.5, 43409.1 | do ; JSL 1229-2; sand, shelf. |
| 125 | 14 | 225 | 40°29.21' | 68°10.65' | 13599.0, 43409.9 | do ; JSL 1229-3; sand, south wall, canyon head. |
| 126 | 14 | 249 | 40°29.18' | 68°10.53' | 13598.1, 43409.6 | do ; JSL 1229-4; sand, south wall, canyon head. |
| 127 | 14 | 199 | 40°28.90' | 68°10.75' | 13600.1, 43407.9 | do ; JSL 1229-5; sand, valley in south wall. |
| 128 | 14 | 145 | 40°28.82' | 68°10.94' | 13601.3, 43407.6 | do ; JSL 1229-6; sand, west rim. |
| 129 | 14 | 143 | 40°28.77' | 68°10.76' | 13600.8, 43407.2 | do ; JSL 1229-7; sand, west rim. |
| 130 | 7 | 247 | 40°25.32' | 68°08.67' | 13604.7, 43385.4 | do ; JSL 1230-1; sand, west wall, dune area. |
| 132 | 7 | 240 | 40°24.87' | 68°09.10' | 13608.2, 43383.0 | do ; JSL 1230-2; sand, west wall. |
| 133 | 7 | 248 | 40°24.55' | 68°09.21' | 13610.0, 43381.1 | do ; JSL 1230-3; sand, west wall. |
| 134 | 3 | 464 | 40°24.39' | 68°08.37' | 13606.8, 43379.6 | do ; JSL 1231-1; silt, west wall. |
| 135 | 3 | 189 | 40°24.87' | 68°09.51' | 13610.1, 43383.2 | do ; JSL 1231-2; gravel, west rim. |
| 136 | 25 | 630 | 40°24.00' | 68°07.89' | 13606.2, 43377.1 | Sediment scraper; ALVIN 1259-1; sand, canyon-floor dune trough. |
| 137 | 25 | 623 | 40°24.04' | 68°07.87' | 13606.0, 43377.3 | Core bottom, 11-13 cm below top; ALVIN 1259-2; silt, outcrop, base of east wall. |
| 138 | 25 | 625 | do | 68°07.85' | 13605.9, 43377.3 | Sediment scraper; ALVIN 1259-3; sand, canyon-floor dune crest. |
| 139 | 25 | 616 | 40°24.07' | 68°07.84' | 13605.7, 43377.5 | Core bottom, 6-6 cm below top; ALVIN 1259-4; silt, slump block, base of east wall. |
| 140 | 25 | 559 | 40°24.40' | 68°07.78' | 13604.2, 43379.4 | Sediment scraper; ALVIN 1259-5; sand, canyon-floor dune. |
| 141 | 25 | 398 | 40°24.54' | 68°07.37' | 13601.8, 43380.1 | Core bottom, 13-15 cm below top; ALVIN 1259-6; silt, slump block, east wall. |
| 142 | 25 | 232 | 40°24.52' | 68°07.10' | 13600.7, 43379.8 | Sediment scraper; ALVIN 1259-7; gravel, east wall. |
| 143 | 25 | 196 | 40°24.65' | 68°06.83' | 13599.0, 43380.4 | do ; ALVIN 1259-8; gravel, east wall. |
| 144 | 25 | 192 | 40°24.60' | 68°06.79' | 13599.0, 43380.1 | do ; ALVIN 1259-9; gravel, east wall. |
| 145 | 8 | 483 | 40°26.25' | 68°07.78' | 13597.1, 43390.5 | do ; ALVIN 1260-1; sand, canyon-floor dune trough. |
| 146 | 8 | 186 | 40°26.55 | 68°06.99 | 13592.4, 43391.8 | do ; ALVIN 1260-2; gravel, east wall. |
| 147 | 8 | 300 | 40°26.20' | 68°08.32' | 13599.7, 43390.5 | do ; ALVIN 1260-3; gravelly sand, west wall. |
| 148 | 9 | 426 | 40°27.41' | 68°08.34' | 13595.1, 43397.7 | do ; ALVIN 1261-1; sand, canyon-floor dune. |
| 149 | 9 | 429 | 40°27.38' | 66°08.41' | 13595.5, 43397.6 | do ; ALVIN 1261-2; sand, canyon-floor dune crest. |
| 150 | 9 | 212 | 40°27.06' | 68°08.90' | 13599.0, 43395.9 | do ; ALVIN 1261-3; sand, silt fragments, west wall. |
| 151 | 12 | 351 | 40°28.88' | 68°09.25' | 13593.5, 43407.0 | do ; ALVIN 1262-1; sand, canyon-floor dune crest. |
| 152 | 12 | 352 | do | do | do do | do : ALVIN 1262-2; sand, canyon-floor dune trough |
| 153 | 12 | 350 | 40°28.83' | 68°09.27' | 13593.8, 43406.7 | do ; ALVIN 1262-3; gravelly sand on silt, base of west wall. |
| 154 | 12 | 314 | 40°28.84' | 68°09.37' | 13594.2, 43406.8 | do ; ALVIN 1262-4; gravel on silt, west wall |
| 155 | 12 | 150 | 40°28.58' | 68°09.98' | 13598.0, 43405.6 | do ; ALVIN 1262-5; sand, west rim. |
| 156 | 12 | 319 | 40°29.03 | 68°09.25' | 13592.9, 43407.9 | do ; ALVIN 1262-6; sand, base of east wall. |
| 157 | 12 | 150 | 40°29.42' | 68°08.18' | 13586.6, 43409.6 | do ; ALVIN 1262-7; gravelly sand, east rim. |
| 158 | | 76 | 40°39.13' | 67°46.12' | 13449.2, 43452.8 | Sediment grab; JSL 1218-1; sand, shelf. |
| 159 | | 75 | 40°39.72' | 67°45.95' | 13446.1, 43456.0 | do ; JSL 1218-6; sand, shelf. |
| 160 | | 74 | 40°39.48' | 67°45.57' | 13445.4, 43454.4 | do ; JSL 1219-1; sand, shelf. |
| 161 | | 74 | 40°39.44' | 67°46.04' | 13447.6, 43454.5 | do ; JSL 1219-4; sand, shelf. |
| 162 | | 74 | 40°39.48 | 67°46.48' | 13449.4, 43455.1 | do ; JSL 1219-7; sand, shelf. |
| 163 | | 170 | [1]40°29.57' | 68°11.0' | | Dietz-LaFond snapper; USGS N148; gravel, north wall. |
| 164 | 11 | 314 | 40°29.36' | 68°09.88' | 13594.4, 43410.2 | Mechanical arm; ALVIN 1034-6; siltstone talus, base of east wall. |
| 165 | 11 | 304 | 40°29.40' | 68°09.91' | 13594.4, 43410.5 | do ; ALVIN 1034-7; siltstone talus, base of east wall. |
| 166 | 17 | 158 | 40°29.65' | 68°10.83' | 13597.5, 43412.5 | do ; JSL 1226-5; siltstone talus, north wall. |
| 167 | 18 | 145 | 40°29.68' | 68°10.84' | 13597.5, 43412.7 | do ; JSL 1227-3; siltstone block from outcrop, north rim. |
| 168 | 16 | 155 | 40°29.27' | 68°11.62' | 13603.5, 43410.9 | do ; JSL 1228-5; siltstone talus, west arm. |

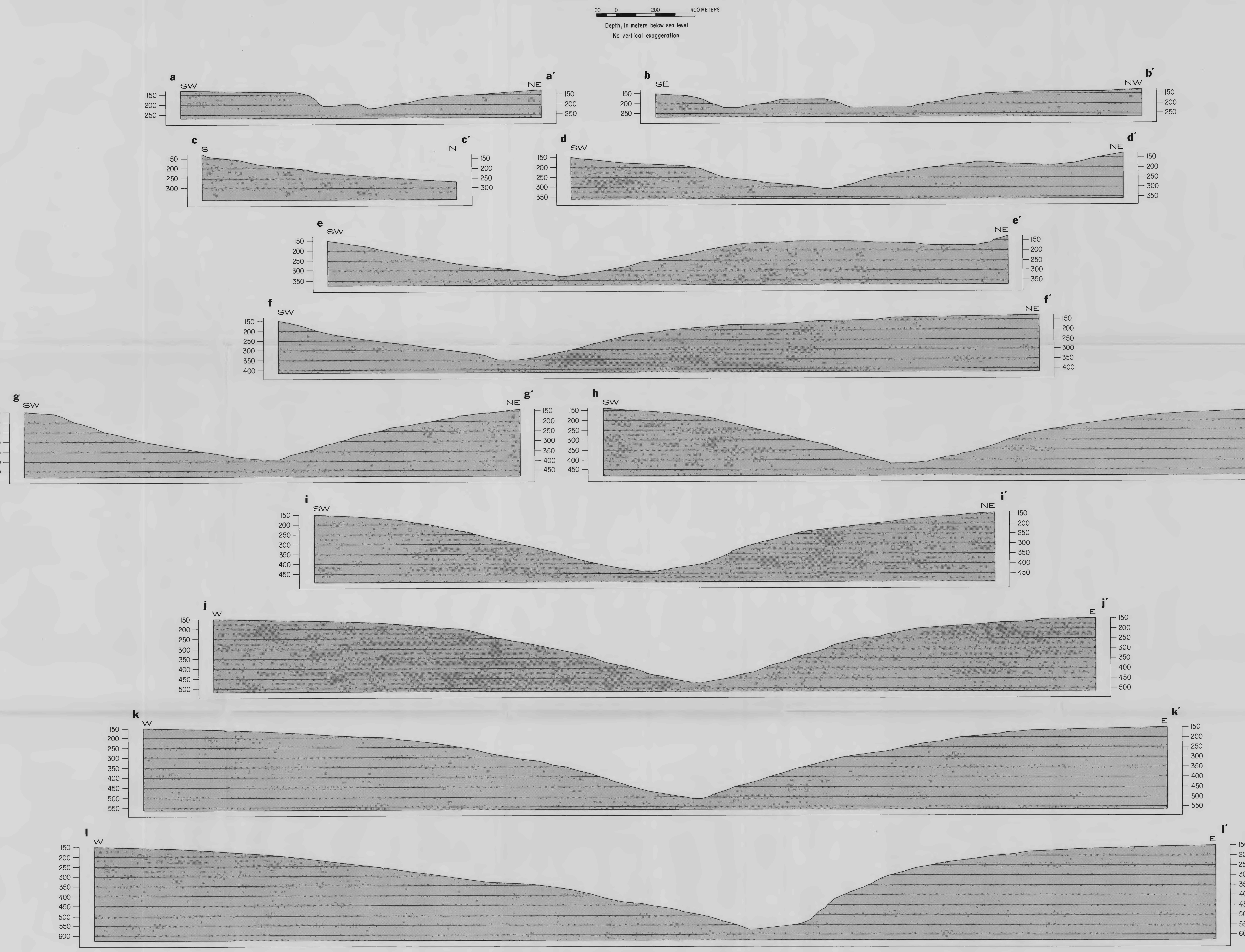
[1]Approximate position

Table 2.--*Benthic invertebrates and demersal fishes typically inhabiting sedimentary environments and depth intervals in northern Oceanographer Canyon*
[○, vagrant; ⊙, nestler, in burrows, under rocks; △, in pueblo villages; •, sessile in burrows; ●, sessile on cobbles and boulders]

| DEPTH INTERVAL | SPECIES | SEDIMENTARY ENVIRONMENT: Shelf-edge sand; smooth, hummocky, or rippled | Canyon-wall sand; smooth hummocky, or rippled; duned in part | Canyon-floor sand; ripples and dunes | Sandy silt, semiconsolidated; burrowed in part; canyon wall | Pebbly sand, gravel, gravel pavement; canyon rim, wall, floor | Siltstone outcrop and talus; canyon rim, wall, base of wall | Glacial erratic cobbles and boulders; on all sediment types |
|---|---|---|---|---|---|---|---|---|
| Shallow (140-299 m) | Bivalves; ocean quahogs, scallops | ○ | | | | | | |
| | Starfish; *Asterias, Leptasterias, Coronaster* | ○ | | | | | | |
| | Flounder, gulf stream; *Citharichthys arctifrons* | ○ | ○ | | | | | |
| | Hake, silver; *Merluccius bilinearis, M. albida* | ○ | ○ | | | ○ | | |
| | Flounder, four spot; *Paralichthys oblongus* | ○ | ○ | ○ | | ○ | | |
| | Goosefish; *Lophius americanus* | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Hake, red; *Phycis chuss* | ○ | ○ | ○ | ○ | ⊙ | ⊙ | ⊙ |
| | Jonah crab; *Cancer borealis* | ○ | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Lobster; *Homarus americanus* | ○ | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Burrowing anemone; *Cerianthus borealis* | • | • | | • | • | | |
| | Hake, white; *Phycis tenuis* | | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Annelid worm mounds | | • | | | | | |
| | Flounder, witch; *Glytocephalus cynoglossus* | | | ○ | | ○ | | |
| | Munid crabs; *Munida* spp. | | | | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Black bellied rosefish; *Helicolenus dactylopterus* | | | | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Ocean pout; *Macrozoarces americanus* | | | | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Tilefish; *Lopholatilus chamaeleonticeps* | | | | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Cusk; *Brosme brosme* | | | | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Redfish; *Sebastes marinus* | | | | ⊙ | ⊙ | ⊙ | ⊙ |
| | Conger eel; *Conger oceanicus* | | | | | ⊙ | ⊙ | ⊙ |
| | Pencil urchin; *Cidaris abyssicola* | | | | | ○ | | |
| | Monaxonid sponge | | | | | ● | | |
| | Anemone; *Actinauge* sp. | | | | | ● | ● | ● |
| | Anemone; *Bolocera* sp. | | | | | ● | ● | ● |
| | Anemone, flytrap; *Actinoscyphia saginata* | | | | | ● | ● | ● |
| | Basketstar; *Gorgonocephalus arctica* | | | | | | ○ | |
| | Codfish; *Gadus morhua* | | | | | | ○ | |
| | Cunner; *Tautogolabrus adspersus* | | | | | | ○ | |
| | Pollock; *Pollachius virens* | | | | | | ○ | |
| Middle (300-700 m) | Long-nosed eel; *Synaphobranchus kaupi* | | ○ | ○ | ○ | | | |
| | Common grenadier; *Nezumia bairdii* | | ○ | ○ | ○ | ○ | | |
| | [1]Goosefish; *Lophius americanus* | | ○ | ○ | ○ | ○ | | |
| | Flounder, four spot; *Paralichthys oblongus* | | | ○ | | ○ | | |
| | [1]Flounder, witch; *Glyptocephalus cynoglossus* | | | ○ | | ○ | | |
| | [1]Hake, red; *Phycis chuss* | | ○ | ○ | ○ | ⊙ | ⊙ | ⊙ |
| | [1]Hake, white; *Phycis tenuis* | | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | [1]Jonah crab; *Cancer borealis* | | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | [1]Lobster; *Homarus americanus* | | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | Red crab; *Geryon quinquedens* | | ○ | ○ | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | [1]Ocean pout; *Macrozoarces americanus* | | | | ⊙ △ | ⊙ | ⊙ | ⊙ |
| | [1]Anemone; *Actinauge* sp. | | | | | ● | ● | ● |
| | [1]Anemone; *Bolocera* sp. | | | | | ● | ● | ● |
| | Anemone, flytrap; *Actinoscyphia saginata* | | | | | ● | ● | ● |
| | [1]Soft coral; *Primnoa resedaeformis* | | | | | ● | ● | ● |

[1]Species restricted to upper part of the middle depth zone which extends from 300 to 1099 m (Valentine, Uzmann and Cooper, 1980a).

## CANYON CROSS SECTIONS FROM SHEET 3




# SUBMARINE TOPOGRAPHY, SURFICIAL GEOLOGY, AND FAUNA OF OCEANOGRAPHER CANYON, NORTHERN PART

By

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