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Supplement of

Substantial stores of sedimentary carbon held in mid-latitude fjords

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N/A

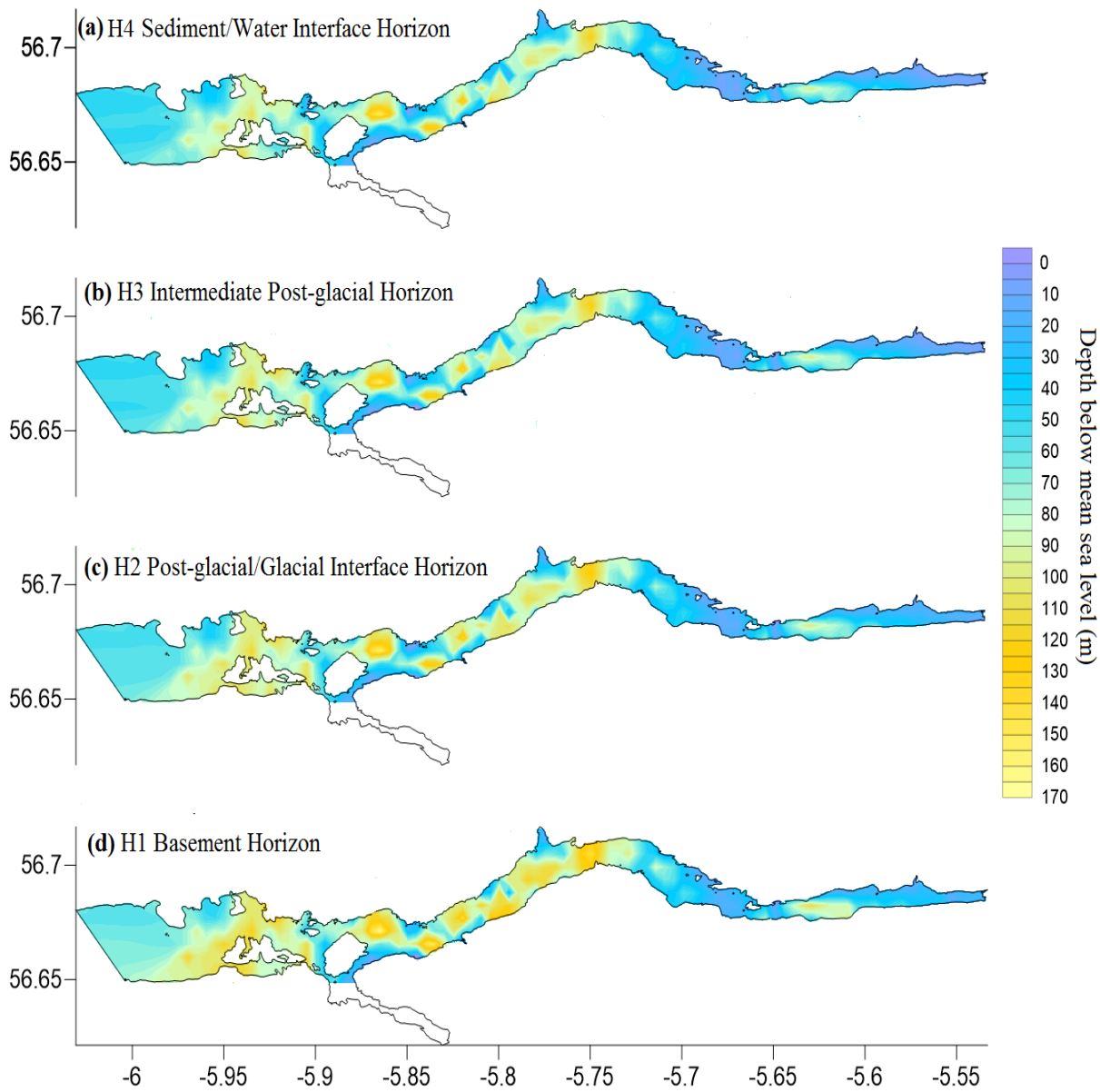
Introduction

The supplementary information includes one supplementary table and eleven supplementary figures.

Basin	Horizon	Kriging (Linear Interp)		Inverse Distance to Power		Minimum Curvature		Modified Shepard's Method		Natural Neighbour		Nearest Neighbour		Radial Basin Function		Triangulation (Linear Interp)		Moving Average		Local Polynomial	
		Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev	Z Mean	Z St.dev
Inner	Surface	0.148	5.381	0.795	7.543	0.166	9.342	0.341	6.404	0.373	4.460	0.080	8.421	-0.308	21.696	0.217	4.459	-1.606	23.948	1.591	12.011
	Holocene Int	0.115	5.513	0.521	7.533	0.108	8.996	0.101	6.292	6.422	13.139	0.347	8.302	0.405	64.849	0.208	4.680	-1.658	23.899	1.586	11.403
	G/PG Interface	0.147	5.574	0.304	7.398	0.077	9.208	0.096	6.237	0.216	4.692	0.215	7.731	-0.315	38.672	0.203	5.113	-1.383	21.752	1.673	11.193
	Bedrock	-0.065	7.780	-0.544	10.188	-0.518	10.074	0.129	7.985	-0.643	7.003	-0.180	10.415	-0.685	22.481	-0.681	6.902	1.634	24.276	-2.317	14.082
Middle	Surface	0.122	5.498	0.801	8.098	0.134	9.897	0.435	5.999	0.408	4.988	0.067	9.811	-0.598	23.67	0.345	5.587	-1.789	21.900	1.498	12.098
	Holocene Int	0.098	5.332	0.634	8.456	0.105	8.213	0.114	6.001	5.221	11.945	0.387	9.765	0.376	71.897	0.303	4.987	-1.854	22.897	1.556	13.001
	G/PG Interface	0.169	5.781	0.299	8.398	0.104	9.346	0.088	6.567	0.111	5.091	0.211	8.931	-0.387	32.677	0.567	5.987	-1.765	23.876	1.603	10.998
	Bedrock	-0.076	6.987	-0.448	9.972	-0.678	11.087	0.469	8.532	-0.632	6.782	-0.204	11.678	-0.703	21.567	-0.456	7.032	1.345	21.478	-2.222	15.073
Outer	Surface	0.156	5.398	0.786	8.034	0.176	9.456	0.289	6.867	0.556	5.123	0.089	9.002	-0.445	26.643	0.311	4.898	-1.675	23.674	1.547	12.002
	Holocene Int	0.101	5.545	0.456	7.001	0.087	7.891	0.105	6.345	7.991	13.456	0.378	9.832	0.378	67.789	0.356	4.698	-1.798	22.111	1.497	12.768
	G/PG Interface	0.134	5.678	0.201	7.457	0.108	9.679	0.078	6.389	0.321	5.897	0.198	10.432	-0.378	43.734	0.689	6.023	-1.666	21.896	1.634	11.034
	Bedrock	-0.045	8.012	-6.045	9.986	-0.789	9.789	0.156	7.765	-0.687	7.015	-0.163	13.001	-0.801	24.834	-0.389	7.091	1.456	22.134	-2.980	15.002
Total Times Methodology Ranked in the Top 3		21		0		10		11		9		5		0		12		0		0	

Ranking	
1st	
2nd	
3rd	

Supplementary Table.1. Cross validation results (Residual Z_{mean} & $Z_{\text{st.dev}}$) for the three basins of Loch Sunart.



Supplementary Figure.1 Contour maps defining the topography of each seismic horizon. **(a)** H4 sediment/water interface. **(b)** H3 intermediate post-glacial horizon. **(c)** H2 post-glacial/glacial interface **(d)** H1 basement.

Supplementary Figure. 2-11.

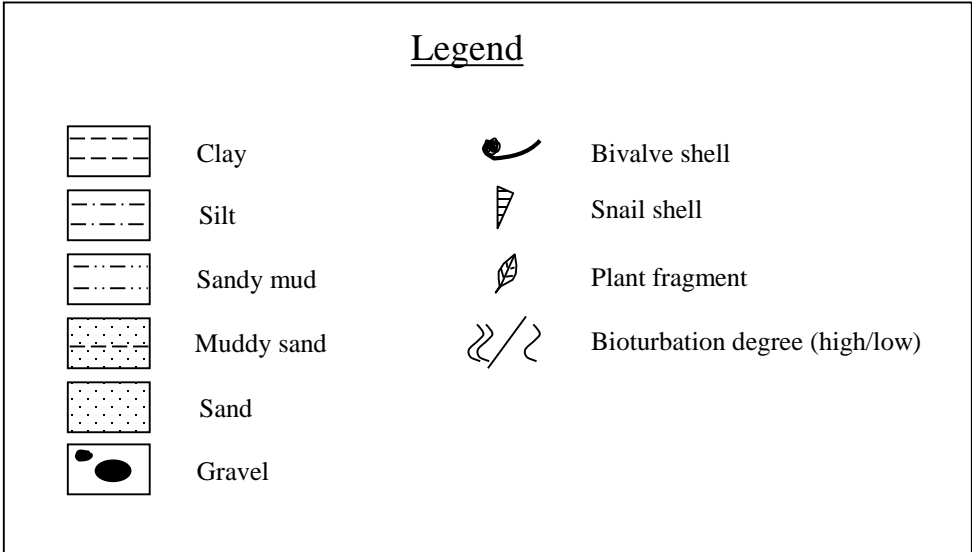
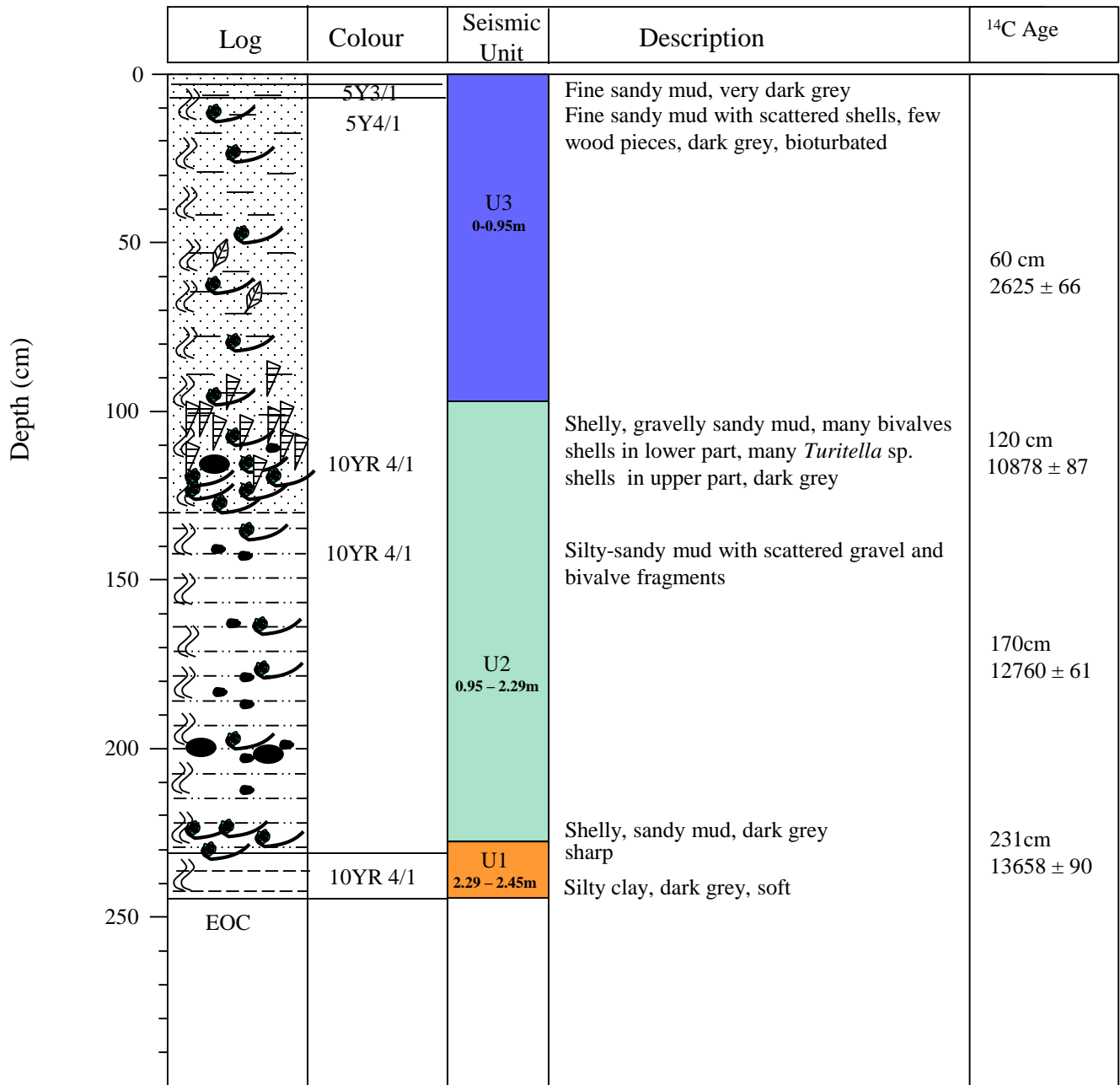
Sediment core stratigraphies displaying the sedimentary logs, seismic units and ^{14}C dates.

Core no.: GC009, Loch Sunart: 56 40.324’N 05 52.025’W, Depth:107 m

	Log	Colour	Seismic Unit	Description	¹⁴ C Age
Depth (cm)	0	10YR 4/1	U3 0-0.84m	0-15 cm:Washed out (during coring) gravelly, shelly mud (large scallop-like bivalves)	140 cm 10801 ± 91
	50	10YR 4/1 5Y4/1		15-143cm: Alternating layers/laminae of sandy, gravelly mud (dark grey: 10YR 4/1) with silty clayey mud (dark grey: 5Y 4/1)	
	100		U2 0.84-1.41m	6 cm large scallop shells 5 cm diam. gravel 3 cm diam. gravel	
	150	EOC			

Legend			
	Clay		Bivalve shell
	Silt		Snail shell
	Sandy mud		Plant fragment
	Muddy sand		Bioturbation degree (high/low)
	Sand		
	Gravel		











Core no.: GC011, Loch Sunart: 56 39.591°N 05 58.178°W, Depth:91 m



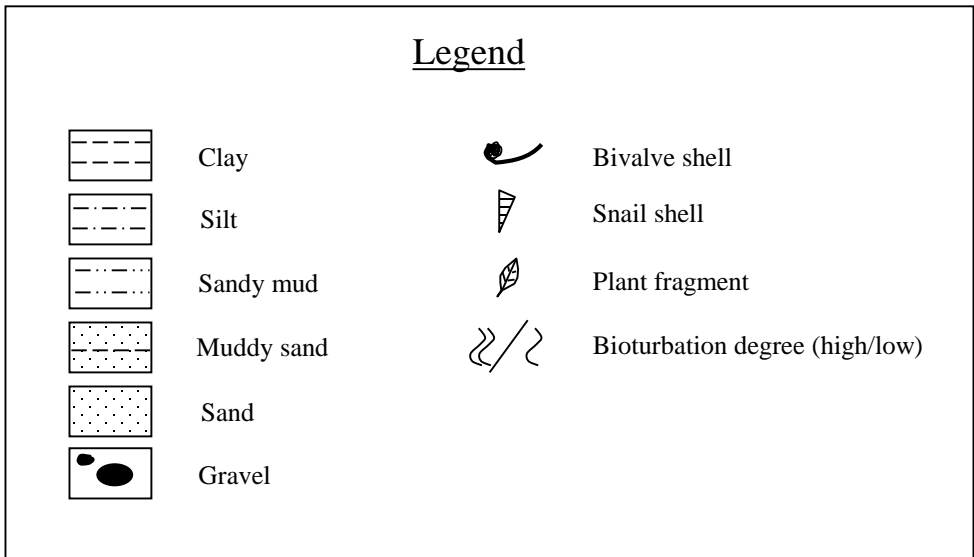
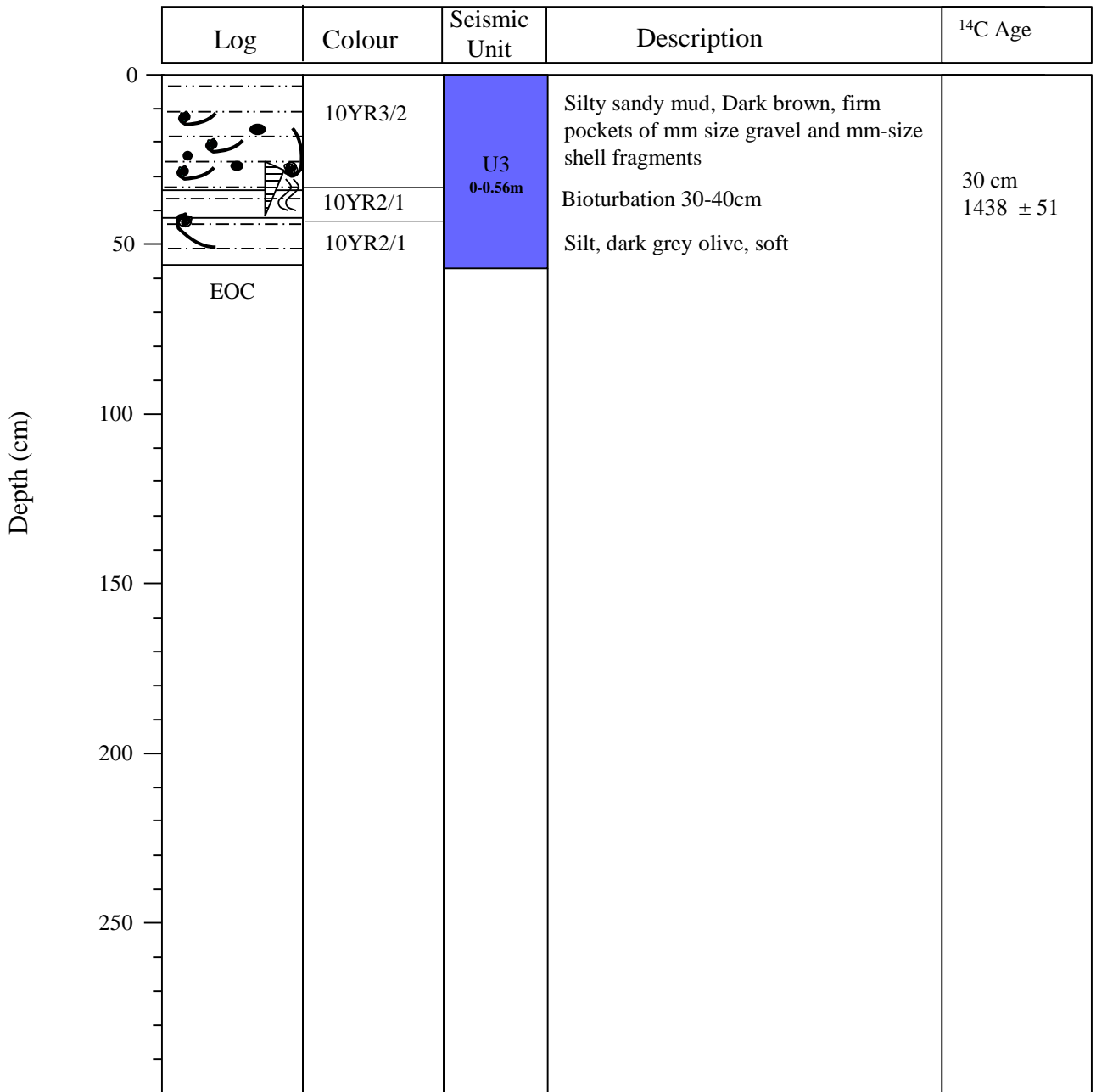
Core no.:GC013, **Loch Sunart:** 56 40.879'N 05 37.771'W, **Depth:**87 m

Log	Colour	Seismic Unit	Description	¹⁴ C Age
0	10YR3/2	U3 0-0.998m	Silty sandy mud, Dark brown, firm.	113 cm 1294 ±35
50			Bioturbation 60-80cm	
100	10YR2/1	U2 0-1.67m	Silt, dark grey olive, soft, slight smell	
100	10YR3/2		Silt, dark brown with black dots, soft, scattered mm size gravel	
100	10YR3/2		Silt, dark brown, mm-size shell fragments	
100	5YR2.5/1		Silt, dark brown, bioturbation, pockets of mm size gravel	
100	5YR2.5/1		Silt, dark brown, pockets of mm size gravel	
EOC				
200				
250				

Legend

	Clay		Bivalve shell
	Silt		Snail shell
	Sandy mud		Plant fragment
	Muddy sand		Bioturbation degree (high/low)
	Sand		
	Gravel		

Core no.: GC016, Loch Sunart: 56 40.857N 05 38.540W, Depth: 58m



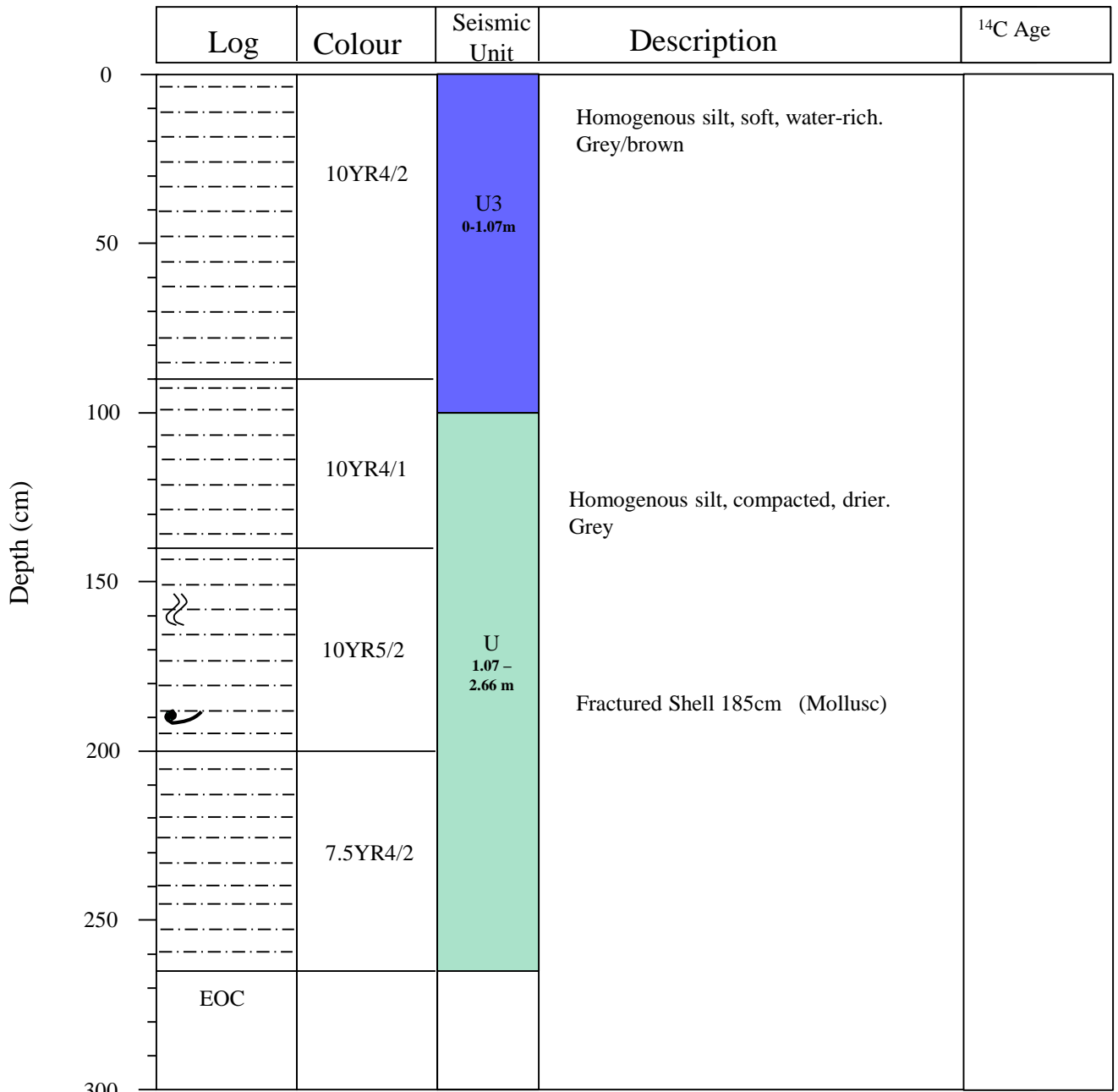
Core no.: GC020, Loch Sunart: 56 42.257'N 05 45.080'W, Depth: 105 m

Log	Colour	Seismic Unit	Description	¹⁴ C Age
	5Y4/1	U3 0-1.15m	Sany shelly mud, dark grey olive, many bivalves sharp	9 cm 357 ± 44
	10YR4/1		Sandy silty mud, scattered gravel (max. 7 cm diam., dark greyish brown, few bivalves, bioturbated	19 cm 2864 ± 57
			↑ upward: gradual more sand content	
	10YR4/1		Silty mud, dark greyish brown, bioturbated	
	10YR4/1	U2 1.15-2.38m	Sandy shelly, gravelly mud, dark grey olive, many bivalves	126cm 13160 ± 90
10YR4/1	Silty mud, dark greyish brown, w. dark grey and reddish brown spots, bioturbated			
EOC				











Legend

Clay Silt Sandy mud Muddy sand Sand Gravel	Bivalve shell Snail shell Plant fragment Bioturbation degree (high/low)
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Core no.: GC022, **Loch Sunart:** 56 40.820 N' 05 48.297 W, **Depth:** 120 m



Legend

- | | | | |
|---|------------|---|--------------------------------|
|  | Clay |  | Bivalve shell |
|  | Silt |  | Snail shell |
|  | Sandy mud |  | Plant fragment |
|  | Muddy sand |  | Bioturbation degree (high/low) |
|  | Sand | | |
|  | Gravel | | |

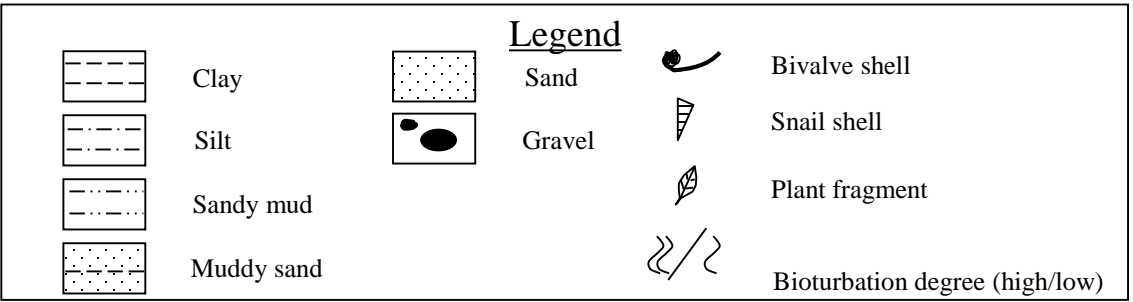
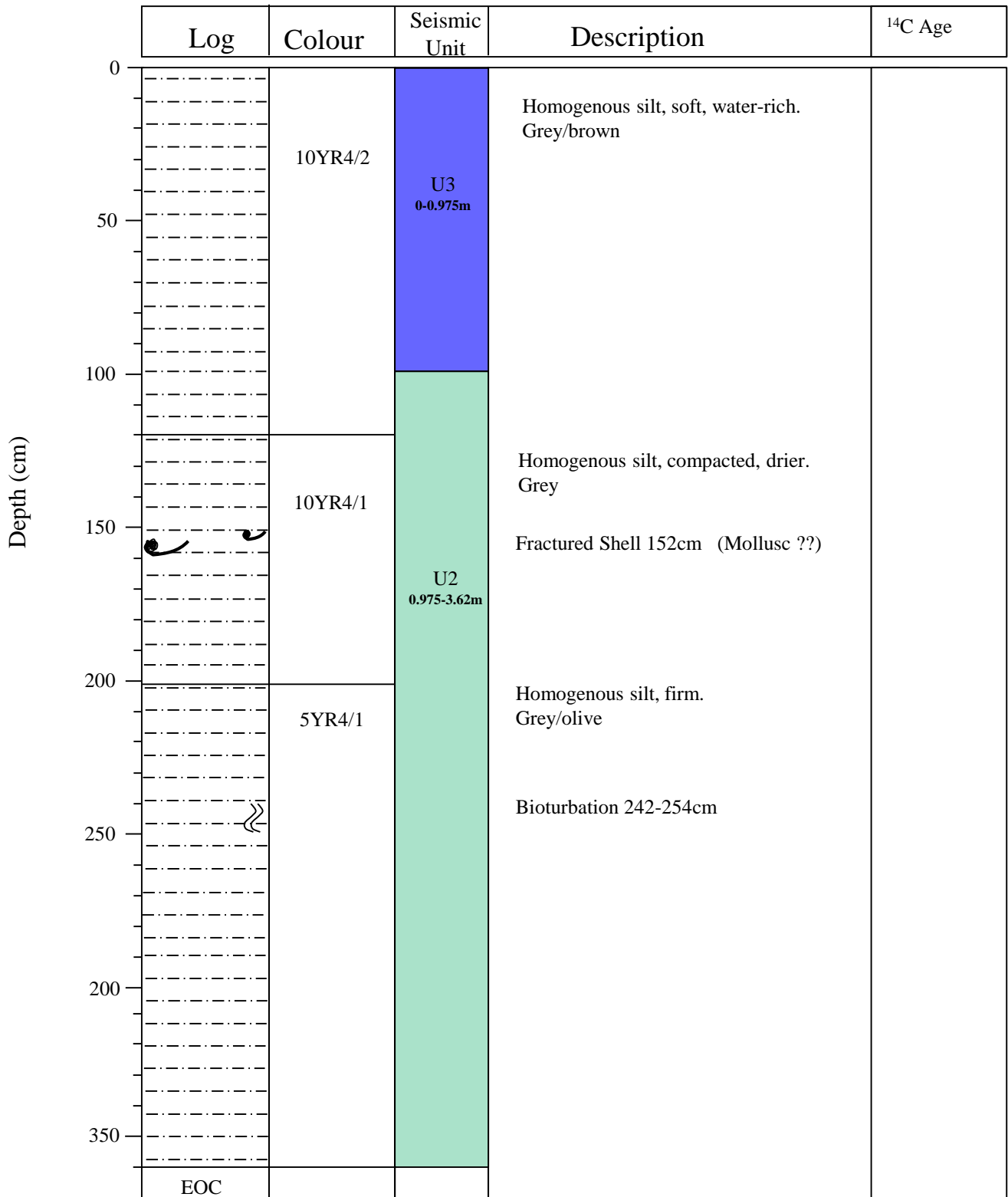
Core no.: GC023, Loch Sunart: 56 40.324'N 05 50.328'W, Depth: 110m

Log	Colour	Seismic Unit	Description	¹⁴ C Age
Depth (cm) 0 50 100 150 200 250 EOC	10YR4/1 10YR3/1	U3 0-1.02m	0-70 cm: Silty sandy mud, dark grey/very dark grey, water-rich soft, H ₂ S smell, w. scattered mm-size shell fragments, bivalves, bioturbated Very dark grey band (redox?) Very dark grey band (redox?)	30 cm 64 ± 51
	10YR4/1			49 cm 788 ± 58
	10YR3/1 10YR4/1			58 cm 886 ± 55
	5Y4/1 5Y3/1			73 cm 1011 ± 66
	5Y4/1			111.5 cm 1274 ± 59
				173cm: wood fragment
		U2 1.02-2.89m		250 cm 1801 ± 80
				286cm 2099 ± 70

Legend

	Clay		Bivalve shell
	Silt		Snail shell
	Sandy mud		Plant fragment
	Muddy sand		Bioturbation degree (high/low)
	Sand		
	Gravel		

Core no.: GC081, **Loch Sunart:** 56 40 139° N 05 51 797° W, **Depth:** 58 m













Core no.: GC-01, Loch Sunart: 56° 41.809'N 5° 42.299'W, Depth:42 m

Log	Colour	Seismic Unit	Description	¹⁴ C Age
EOC	10YR4/1	U3 0-0.2m	Silty sandy mud, dark grey/very dark grey water-rich, soft	

Depth (cm) scale: 0, 50, 100, 150











Legend

	Clay		Bivalve shell
	Silt		Snail shell
	Sandy mud		Plant fragment
	Muddy sand		Bioturbation degree (high/low)
	Sand		
	Gravel		

Core no.: MD04-2833 VIII, **Loch Sunart:**57 31.06N 08 23.17 ' W, **Depth:** 158 m

Log	Colour	Seismic Unit	Description	¹⁴ C Age	
1050	10YR4/2	U1 18- 19.35m	Dry, heavily compacted. Glacial origin Brown/grey	745 cm 17041 ± 312	
1100			Cracking		
			Sand, course grain		
1150			10YR4/2		Sand, course grain
			10YR4/2		Sandy mud, course grain
1200	EOC				
2000					
2050					
2100					

Legend

- | | | | |
|---|------------|---|--------------------------------|
|  | Clay |  | Bivalve shell |
|  | Silt |  | Snail shell |
|  | Sandy mud |  | Plant fragment |
|  | Muddy sand |  | Bioturbation degree (high/low) |
|  | Sand | | |
|  | Gravel | | |