



**Daily Drilling and Scientific Report for
IODP3-NSF Expedition 501
New England Shelf Hydrogeology, 2025**



22nd May 00:00 – 22nd May 24:00 East Daylight Time (UTC -4)

1. Location

Position 40.8746°N, 70.2697°W @12:00 EDT 21st of May
IODP-MSP borehole M0111A
Prospectus borehole MV-03C
Water Depth: 42m

2. Operations Report

Coring continued from 00:00 using the HPC. Core 5 was on deck at 00:40 with 2.45 m core recovered. From 00:30 to 06:00 casing was washed into the borehole to 11.7mbsf due to challenges caused by vibration and bending. HPC coring recommenced at 06:00 and at 06:30 Core 6 was on deck with 2.24m core recovered. HPC coring continued from 06:30 to 07:15 but the barrel in this run was observed only to extend 0.83m. Accordingly, Core 7 returned 0.83m of recovered core. HPC coring continued from 07:15 to 08:00 but no core was recovered. From 08:00 to 08:50 coring resumed using Extended Nose Coring (EXN) but was paused after 30 minutes due to poor advance (< 0.5m). Core 9 returned 0.44m of material from EXN coring identified as likely glauconitic sands at 08:50. The decision was made to switch to the Alien Tool Core assembly (ALN) for cores 10 and 11 but problems were encountered with pipe sticking, torquing and slow advance. Core 10 (1.33 m recovery, on deck at 09:50) and 11 (0.48m recovered, at 11:00) showed signs of burning in/heat damage. The bore hole assembly (BHA) was inspected at 11:30 but no wear on the bit was noticeable.

The decision was made by the CC, Operations Manager and drillers to wash casing down in order to avoid problems with poor recovery and resistance. Casing was washed down into the borehole from 11.7mbsf at 11:30 to 31 mbsf from 11:30 to 18:30. From 18:30 to 22:30 the drilling crew encountered problems with the mud return system, which were resolved by 22:30. Coring operations resumed using the EXN assembly from 31 mbsf and core 12 was on deck at 23:10 with 0.77m recovery. Coring continued using HPC with Core 13 recovering 1.55 m at 23:50.

3. Science Report

30 samples were taken on the 22nd of May from the cores for interstitial water geochemistry, micropaleontology, and microbiology. Further splits from these samples were taken for geochemical and paleontological analyses. All sample details were recorded in the mdis system.

4. Core Recovery

Hole	M0111A
Cores recovered	9 (1 no recovery)
Drilled length (Coring, m)	10.44
Drilled length (Open hole, m)	19.3 wash down
Recovered length (m)	9.33
Recovery (%)	89%
Depth at midnight (mbsf)	35.35 mbsf

5. Time Breakdown

00:00 Coring using HPC continued
00:40 Recovered Core 5 – 2.45m
00:30 – 06:00 wash casing into borehole
06:20 Recovered Core 6 – 2.24m
07:15 Recovered Core 7 – 0.83m
07:15 - 08:00 HPC continued but no recovery
08:00 – 08:50 EXN coring no recovery
08:50 Core 9 recovered from EXN coring – 1.15m
09:00 Switch to ALN assembly

09:50 Core 10 recovered – 1.33m
 11:00 Core 11 recovered – 0.48m
 11:00 – 16:30 casing washed down to 31 mbsf
 18:30 – 23:00 Assessing/repairing mud return system
 23:10 Core 12 recovered - 0.77m
 23:50 Core 13 recovered - 1.55m

6. Hours (inc. cumulative total) – no contractual implications can be made from these figures

In port	n/a
Transiting	n/a
Operating	18h30m
Technical downtime	5h30m
Weather downtime	n/a
Other downtime (specify)	n/a

7. Weather

Wind 42-45 mph with 50+ mph gusts from ENE at 12:00. Wave height 2.5-3.3m. Significant precipitation. Poor visibility <400m. Winds

8. Planned Activity for the next 24 hours

Continued coring from 35.35 mbsf using HPC initially then switching to different BHA if required
 Transfer of six X501 team members onto the vessel via helicopter and OSV from 10:00 onwards
 Curation and sampling of cores

9. Health and Safety and Environmental

Poor weather conditions on the 22nd. Wet with high winds; X501 team and all crew advised to be careful while working outside. Weather conditions monitored to assess safety during operations. Wet weather PPE required, and caution to be taken on stairs.

Helicopter and OSV transfer scheduled for the 22nd cancelled and rescheduled for better conditions on the 23rd.

10. Photo of the day



Expedition 501 scientist Avishek Dutta cleans the portable glove bag inside the Geochemistry Container in preparation for taking microbiology samples.
STEWART@ECORD_IODP3_NSF_Dutta_glove_bag