**Materials and Methods**

1. 2.13m cores were taken from a 1x1m pit.
2. Sub-sampling of the cores for DNA and pollen at regular 6cm intervals were undertaken in a dedicated ADNA lab.

**Ancient DNA results**

<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>Total reads</th>
<th>Bacteria</th>
<th>Eukaryota</th>
<th>Archaea</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.80</td>
<td>8 836</td>
<td>50 300</td>
<td>154 390</td>
<td>7 266</td>
</tr>
<tr>
<td>1.12</td>
<td>22 850</td>
<td>10 078</td>
<td>92 454</td>
<td>23 173</td>
</tr>
<tr>
<td>1.70</td>
<td>129 499</td>
<td>59 769</td>
<td>66 599</td>
<td>18 532</td>
</tr>
</tbody>
</table>

**Key example 1: Plant taxa and a correlation with pollen record**

- Pinus is only representative of 0.04% of the total assigned plant taxa; a low value comparative to the pollen abundance and not present in all samples where the pollen is...
- 21% of plant reads have assigned to the family Poaceae which suggest a potential correlation with the pollen record; However of those only 0.2% have assigned to a known Poaceae plant taxa (e.g. Phragmites) which cannot be assessed for damage as there is no reference genome for comparison.
- The remaining taxa have aligned to model organisms such as Barley, highlighting key issues such as gaps in the database for plants and possible unaccounted contamination.

**Concluding remarks**

- The relationship between sediment type and DNA preservation is difficult to assess in the context of intertidal deposits, where the dynamics of deposition and erosion are at a constant changing pace.
- In the context of taphonomic processes, there is a pre and post deposition phase - this is complex relationship which involves the modern environmental DNA influences, and the persistence of ancient DNA.
- The presence of modern DNA across the strata also demonstrates a need to further investigate the integrity of known palaeoenvironmental deposits, to examine the mechanism of movement and deposition.

This work is still at the earliest phase of analysis, and requires much further work. One of the main next steps is to examine the relationship between in-situ palaeoenvironmental particle distribution and potential binding capacity for sedaDNA.

- Particle size analysis of palaeoenvironmental deposits to provide further information on sediment structure and how the dynamics of mixed sediment type may affect sedaDNA preservation.