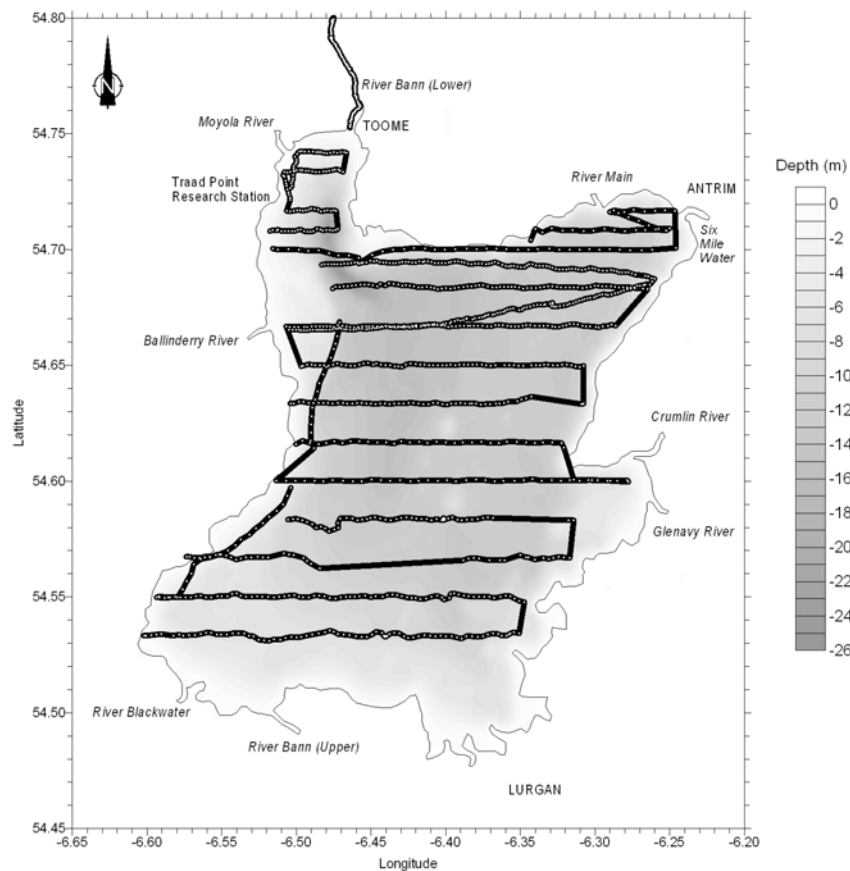


APPENDIX 2 Side-scan sonar survey of Lough Neagh

Survey equipment comprised an EdgeTech Model 272-TD towfish in association with an EdgeTech Model 260-TH thermal recorder. The vessel based at the Research Station at Traad Point (Fig. 1 in main text) was used as the survey platform. Slant-range corrected side-scan data were acquired at an operational frequency of 100kHz with a range of 100m per channel (swath width of 200m). The majority of the survey lines were orientated east-west, whilst positional information was provided by a *Trimble GeoExplorer* GPS unit. In excess of 200km of trackline acoustic data were acquired and interpreted (Fig. A2.1). The resultant data-set represents approximately 5% bottom coverage, with an average distance of 1.8 km between successive survey lines.

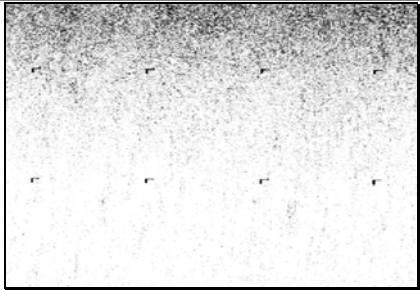
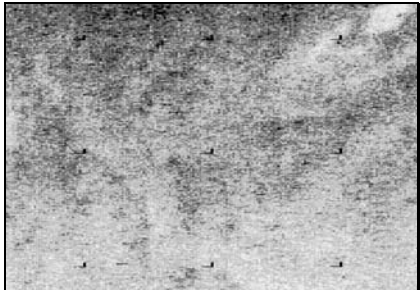
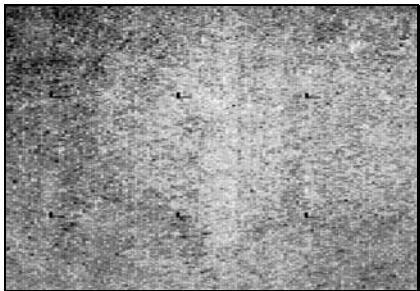
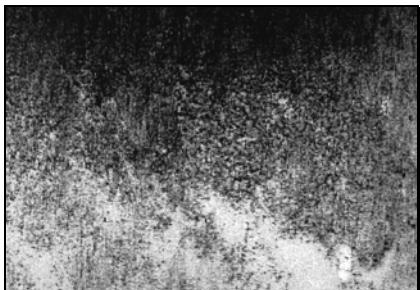
Fig A2.1. Trackchart of the side-scan sonar survey (1996-1997). The black buffer represents a swath width of 200m (100m range per channel) and the white filled circles indicate position fixes from the *Trimble GeoExplorer* GPS system (boat position).



Type data from the side-scan surveys, interpreted using an acoustic-facies approach, are presented in Table A2.1. Due to the incomplete nature of bottom coverage (circa 10% areal coverage), the production of a complete and detailed substrate map from the acoustic facies data is impossible. Four acoustic facies are identified on the basis of strength of backscatter, textural and tonal characteristics and presence or absence of

bedforms. Acoustic facies I (low backscatter) is dominant in terms of areal extent, and correlates with the mud substrate identified in the mental map (Fig. 2 in main text). Acoustic facies II (medium backscatter) correlates with the sand substrate of the mental map, and in areas of the Lough is characterised by distinct negative relief features linked to sand dredging. Acoustic facies III (medium to high backscatter) and acoustic facies IV (high backscatter) correlate with the gravel beds and rock/stone substrates of the mental map. The composite sidescan-sonar substrate map is given in Fig. 3 (main text).

Table A2.1. Type data from Acoustic Facies I-IV and their descriptions.

Facies	Type Image	Description
I		<p>Low backscatter return. Uniform, smooth texture. Low tonal variation. Absence of bedforms.</p>
II		<p>Medium backscatter return. Locally rough surface texture. Medium tonal variation (streaky signature in places). Local presence of bedforms.</p>
III		<p>Medium to high backscatter return. Shares characteristics of Facies II and IV.</p>
IV		<p>High backscatter return. Rough surface texture. Acoustic shadows from discrete individual reflectors.</p>