

#### APPENDIX 4 Possible influence by other maps and surveys

It is important to assess the extent to which fishermen's perceptions of the lough's bathymetry and substrate may have been influenced by exposure to maps, charts and surveys of Lough Neagh that predated the 1980-81 mental mapping exercise carried out by Donnelly. There were four possible sources of such influence. These consisted of a British Admiralty chart, and three pieces of academic work carried out by researchers based at the University of Ulster's Freshwater Biology Research Station at Traad Point on the western shore of the lough. Two of these have substrate maps (one based on the other), while the third presents a set of seismic profiles across the lough.

##### Admiralty Chart No. 5074 (1835)

The first bathymetric survey of Lough Neagh was carried out by the British Admiralty in 1832, and published as Chart No. 5074 in 1835 at a scale of 1:63 360. The chart has overprinted compass bearings, but does not have a position graticule. However, the chart legend states that is "adapted to the points of the Ordnance Survey", which confirms that it uses the OS triangulation network for its position fixes. A latitude/longitude fix is given for one landmark on an island off the central east shore. Soundings were carried out by lead-line survey, are given in feet, and are not contoured. The chart uses abbreviations in a 5 class system to denote spot samples of clay, mud, sand, stones and rock.

##### O'Sullivan *et al.* (1973)

In their 1973 paper (page 269) O'Sullivan *et al.* present 5 seismic profiles across the northern half of the lough. These demonstrate an uneven bedrock basement, infilled with glacial deposits and later sediments. The profiles give the relief of the bottom along the transect lines, but convey no information on surficial sediments. The seismic sections are accompanied by a thumbnail transect location map, but no georeferencing information is given.

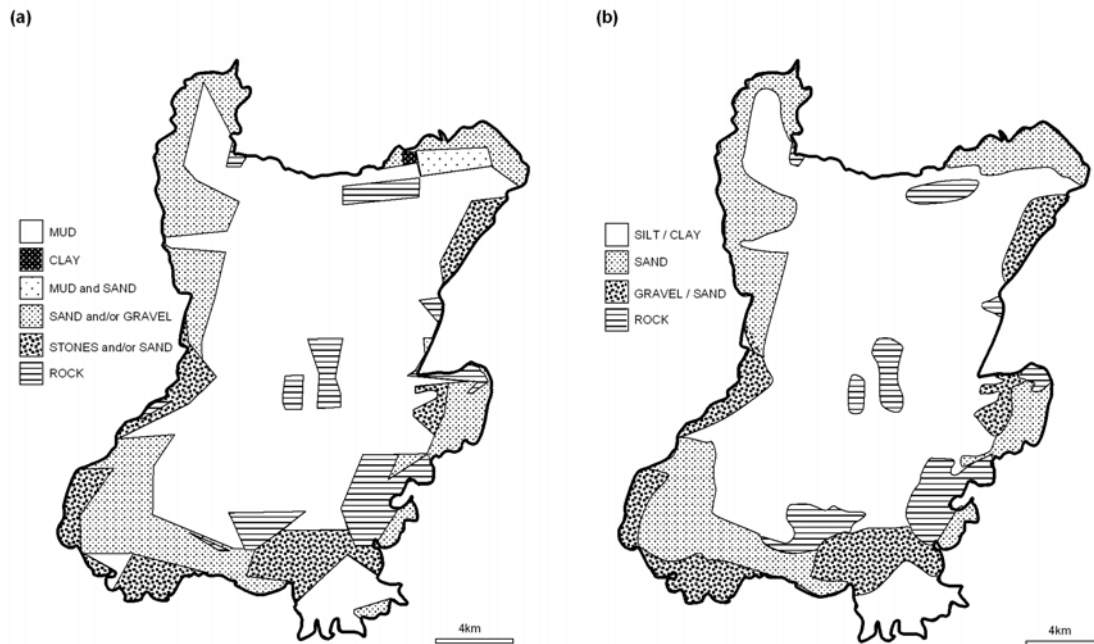
##### Flower (1980)

In his unpublished doctoral thesis of 1980 Flower gives a non-georeferenced 6 class substrate map of Lough Neagh based on grain-size distribution of bottom samples (Fig. A4.1a). The geometrical boundaries of the facies divisions suggest a high degree of generalisation. Flower used whatever grain-size information was to hand, mainly bottom samples from his own sample sites and those of other researchers in the Traad Point Research Station who were working in specific areas of the lough. These sources were augmented by substrate information taken from the 1835 Admiralty chart. It is also likely that some information was obtained from the two Traad Point boatmen, who were both also fishermen (C. Carter & D. Jewson, *pers. comm.* 2006).

##### Clayton (1980)

In an unpublished masters dissertation of 1980 Clayton presents a non-georeferenced 4 class substrate map of Lough Neagh (Figure A4.1b). This map was prepared by the late R.W.G. Carter and is based on a draft of Flower's substrate map. Essentially the same map with very minor modifications appears in Carter 1993, an indication that on that date there was still no other substrate map available.

**Figure A4.1.** Substrate maps of Lough Neagh: (a) Flower (1980) (b) Clayton (1980).



The 1835 chart followed the usual Admiralty practice and tied its field-acquired positional information to the positioning network and shore topography of the Ordnance Survey. The three academic studies described above all required a basic outline map of Lough Neagh. Since all three had access to the 1835 Admiralty chart in the Traad Point Research Station, this chart is the most likely original source.

As far as the potential influence of the 1835 Admiralty Chart is concerned, there is no evidence that the Lough Neagh fishermen used it, or carried it on their boats. To Donnelly's knowledge only one of the 120 fishermen he interviewed had a copy of the chart (kept at home), and none of the others ever referred to it. It is, of course, possible that they knew that a chart existed, but certainly no routine or even occasional use was made of it. In any case the chart does not have a graticule that could be used to assist positioning. Donnelly used a 1:63 360 Ordnance Survey map as the origin of his outline map. His presentation of an accurate outline of the Lough arguably constrained the potential inaccuracy of the mental map since the map elements must necessarily be drawn inside the outline. To this extent it may be claimed that the mental map is "influenced" by the map outline, but it is a somewhat strained point.

It is possible that at least a few members of the fishing community were aware of the maps and diagrams in the academic literature, although more likely in the form of a pre-publication draft than in a published paper. Many fishermen lived close to the Traad Point Research Station, which had been established in 1969. They had occasional workplace and social contact with the scientists based there, and some of the latter lived locally. The two university boatmen were also fishermen. However, it is difficult to make a realistic claim of "influence". Even if some of the fishermen had sight of these sources,

they would have had little to learn from the relatively small-scale distance/depth profiles in O'Sullivan *et al.*, and it is extremely doubtful if Flowers' decidedly sketchy facies map, or Clayton's substrate map derived from it, had any influence on vastly more knowledgeable fishermen. It is much more likely that, if any transfers of information took place, they were in the opposite direction.