

Seabed sediment classification

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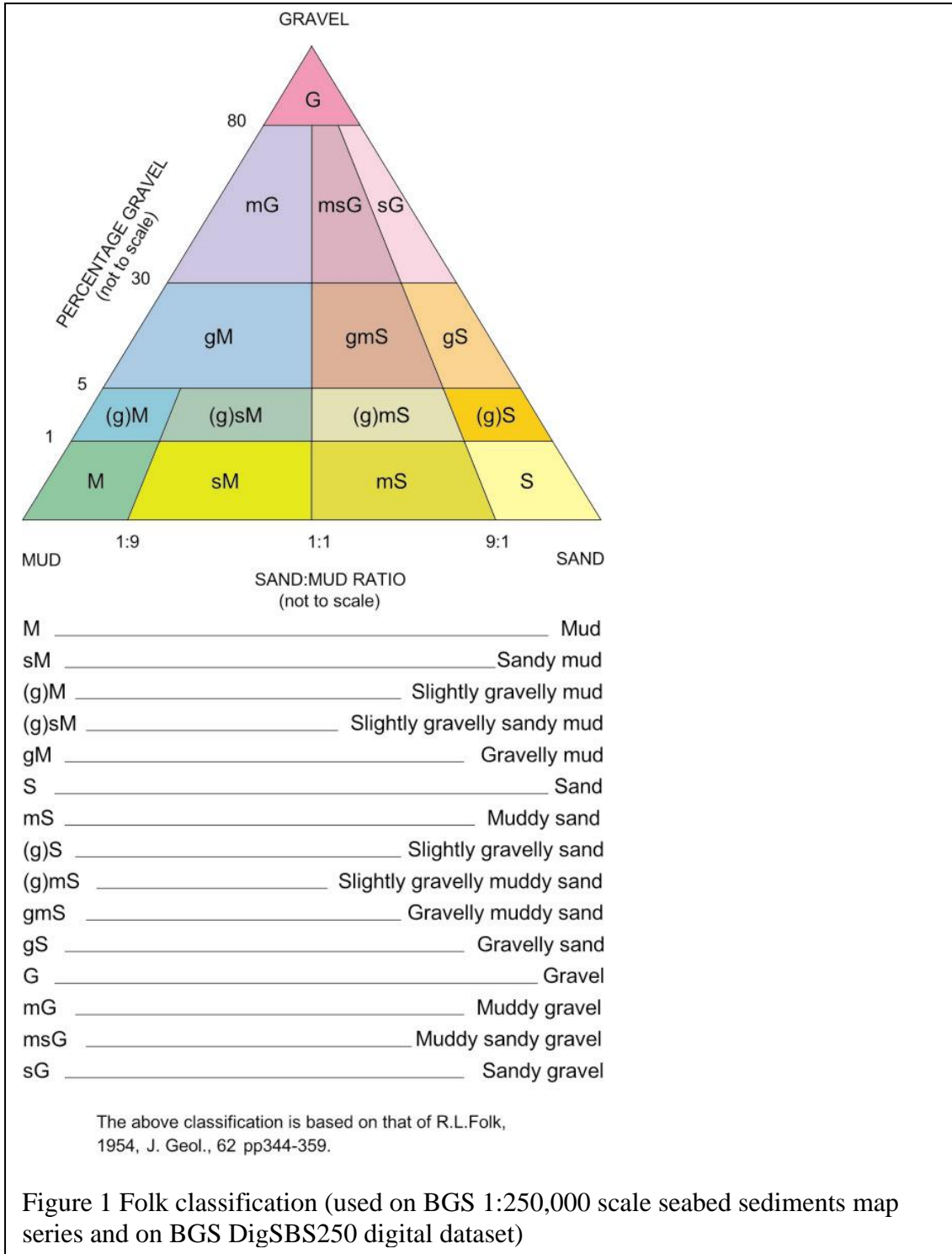
There are numerous different classification schemes. Every sediment is a mixture of grains of varying sizes. There have been different definitions of terms used for the different sizes of individual grains and similarly differing definitions for the terms used to describe the relative proportions of different grain sizes.

A common classification used derives from that proposed by Folk (1954). It groups grains into mud, sand and gravel on the basis of their diameter with the boundary between mud and sand size grains at 63µm (0.063mm) and the boundary between sand and gravel size grains at 2mm. The relative proportion of the grains in the three categories is then used to describe the sediment (Figure 1) and is displayed in a diagram commonly called a “Folk triangle”. This classification with 15 terms to describe the seabed sediments has been used by BGS for its 1:250,000 map series. The separation between sediments with less than 1% gravel and those with 1–5 % gravel was removed for the BGS 1:1,000,000 map series (Figure 2).

More recently a new simplified classification was used in response to a request from UKSeaMap for a digital product that was more focused towards the EUNIS habitat classification system. As well as the merging of classes together (Figure 3) it is important to note that the particle size criteria used to define these classes differs from that of the normal Folk triangle. The main difference is differentiating muddy sands from sandy muds where the ratio of sand to mud is 1:4; i.e. a sediment may have up to 79.9% sand and with 20.1% mud at the seabed it would still have the habitat characteristics of “Mud and sandy mud”. Sediments with a greater percentage of sand would be classified as “Sand and muddy sand sediments” (Figure 4).

In all these classification and their “Folk triangle” it is important to realise that diagram is not to scale, rather it is a topological representation of the subdivisions. If the modified classification was drawn to scale (Figure 5), the areas of each seabed sediment class change dramatically. It shows clearly that the addition of only a small amount of mud in a coarse sediment will cause the sediment to be reclassified as “Mixed sediment”. This grouping of classes reflects nature as most seabed samples occur along the Mud to Sand axis or along the Sand to Gravel axis and occur in the middle of the triangle.

Folk, R.L., 1954. The distinction between grain size and mineral composition in sedimentary rock nomenclature. *Journal of Geology* 62 (4), 344-359



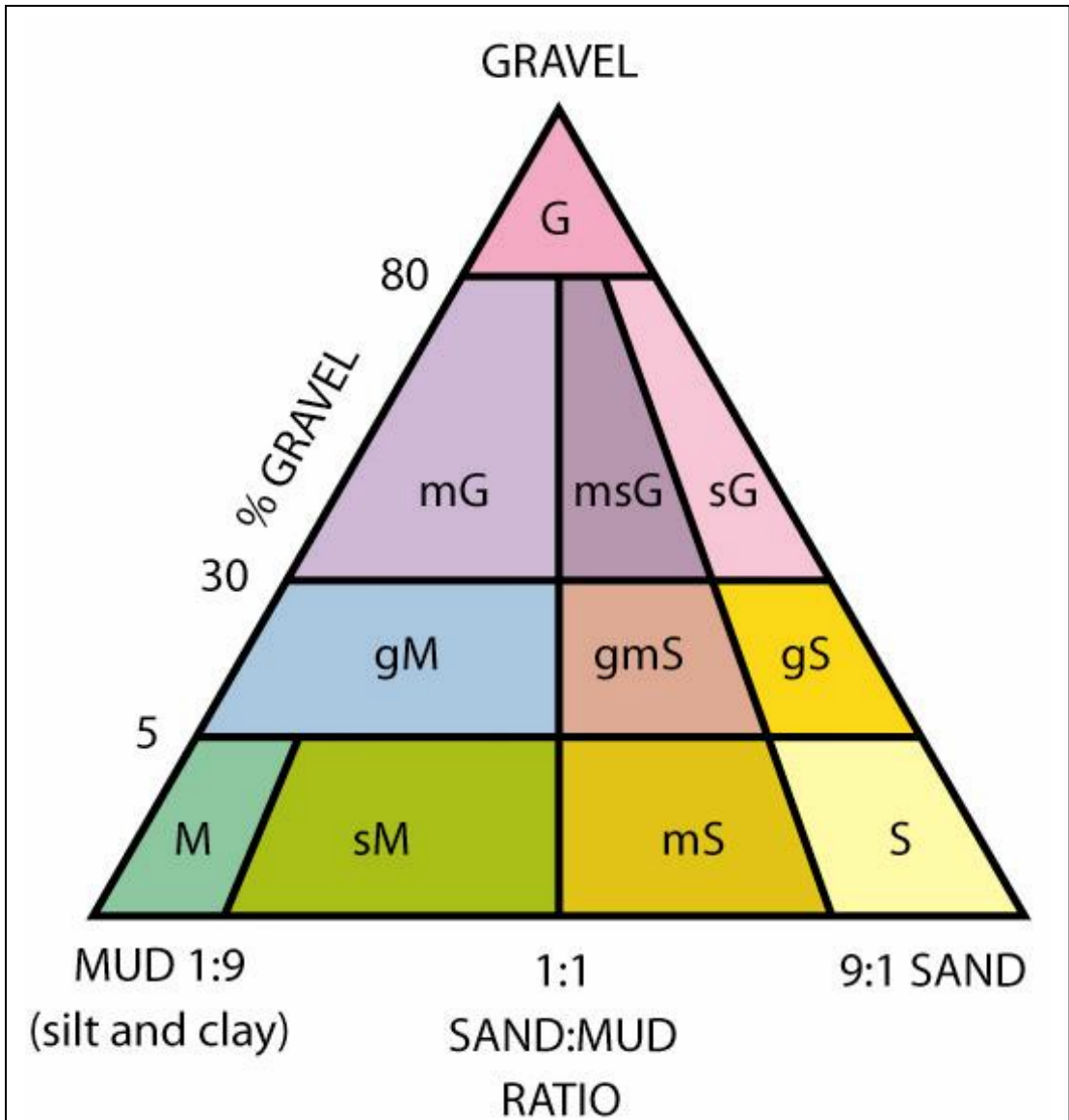


Figure 2 Simpler Folk triangle (used on BGS 1:1,000,000 scale seabed sediments maps)

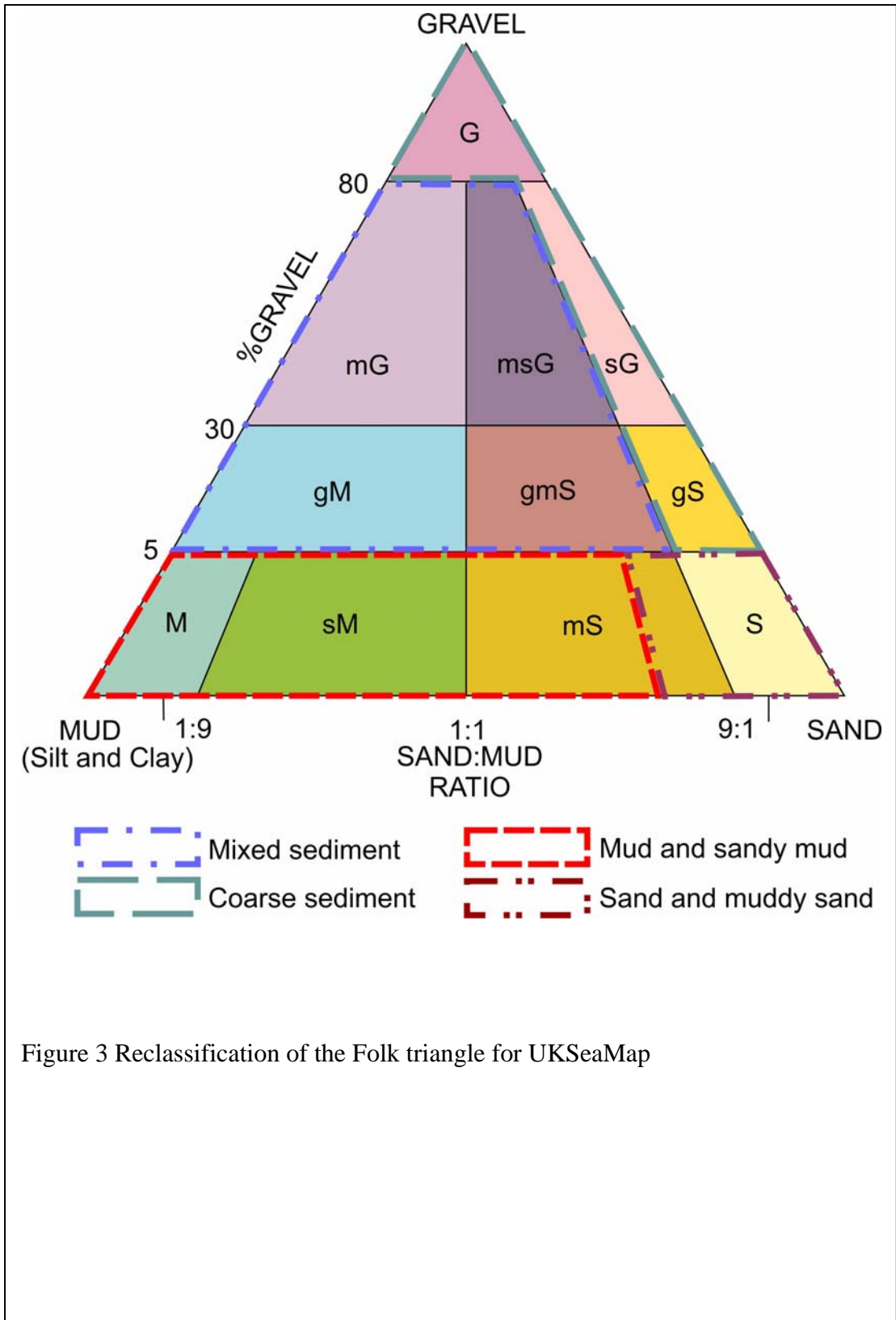


Figure 3 Reclassification of the Folk triangle for UKSeaMap

