

# Field Sediment Card

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Sediment characteristics are an important element in understanding those coastal and marine flora and fauna which use the sediments as habitat. There are thus a wide range of people (perhaps you!) who regularly use measurements of sediments to help them in their work.

There are many high-quality laboratory measurement techniques, and interpreting the results can be very complex and generally requires expert advice. However, in the field these are seldom accessible. This card is designed to be a ready reference for field descriptions of coastal and marine sediments.

## The card itself

This waterproof card can hang around your neck in the field, and help you quickly and reliably assess the general nature of the sediments you are dealing with. Although not essential, a good quality hand lens is a valuable addition to your field kit. For the characteristics below, simply place the field card against your sediments and make a visual comparison. For the textural characteristics, you only need to write down one or two letters (those underlined on the card), and a single number for the colour.

## Grain size

*This characteristic relates strongly to the source(s) of the grains, the mode of their transport and the degree of vertical mixing of the sediment body (e.g. through bioturbation).*

Size describes the general length of the grains and, on this card, is shown using the Wentworth size classification. There is a numerical reminder of the sizes of the BOULDERS, COBBLES, PEBBLES and GRANULES, but the visual scale here is for SANDS. Typically, the modal (most common) size is recorded.

For grains finer than sand, as a rule of thumb, if you can't see the grains but can feel them on your teeth, they are SILTS, and finer than that they are CLAY. Obviously, choose your sediments carefully—not all are clean enough to put in your mouth!

## Grain sorting

*This can tell you something about the sediment source, and/or the mechanism of transport the particles have undergone (e.g. water or wind), and also something about the likely porosity and permeability of the bulk sediment.*

Sorting describes how different (poorly sorted) or similarly sized (well sorted) the particles are in a sample.

## Grain roundness

*This is influenced by sediment source, the degree of transport and particle composition. Generally, the more angular the sediment the closer to source it is likely to be and/or the more resistant the particles are to erosion.*

Roundness describes how rounded or angular the corners of the grains are. Note also that roundness is not the same as grain shape (see below)—a long thin grain can still be rounded!

## Grain shape

*This is controlled strongly by the source. For example, some organisms produce elongate grains, many minerals can have preferred crystal shapes and some rock types tend to produce particular shaped grains when they break down. Of course, these shapes can then be modified during sediment transport.*

Shape describes how like a prism or a disc the grains appear (as seen in two dimensions).

## Sediment colour

*Sediment colour can be influenced by composition, sediment oxidation state, sorting and other parameters. Colour typically refers to the bulk sediment, but sometimes it is also useful to describe individual grains or prominent grain types.*

Using a colour scale (e.g. Munsell, 2000) is useful in comparing sediments from different places and helps clarity of communication. The 20 colours on the card represent the majority of sediment colours we have observed across a range of projects in Western Australia.

Sediment colour is best measured immediately on collection while the sediment is still wet. Hold the card next to your sediment and assess which colour best matches the overall sediment colour. The equivalent Munsell notation of the 20 colours on the card are given as shown in the table.

The card has a 9 cm ruler on it to act as a size and photographic scale. Further, the colour grid (at the top) and black and white bars (bottom) each measure 0.5 cm across.

If sediments are part of your work, we hope you find this card useful; we do in our work!

This card was produced by Oceanica's in-house expert GIS/Cartography group.

## References

Munsell Soil Color Charts (2000) Munsell Color Corporation.

Wentworth, C. K. (1922) A scale of grade and class terms for clastic sediments, *Journal of Geology*, Vol. 30, 377-392.



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Card Colour (SCardV1.0)	Munsell Colour
1	5Y 8/1
2	2.5Y 8/2
3	10YR 8/3
4	10YR 8/2
5	2.5Y 8/1
6	2.5Y 7/2
7	10YR 6/3
8	5Y 6/2
9	10YR 6/4
10	5Y 5/2
11	Gley1 7/5GY
12	2.5Y 6/1
13	Gley1 5/10Y
14	Gley1 5/N
15	Gley1 4/N
16	Gley1 3/N
17	Gley1 3/10Y
18	Gley1 3/5GY
19	Gley1 2.5/N
20	Gley1 2.5/10Y