

A classification of these structures based on the value of the stability parameter is proposed below.

- $N_s = H/(\Delta D) < 1$: **Caissons or seawalls**

No damage is allowed for these fixed structures. The characteristic size, D , can be the height or width of the structure.

- $N_s = H/(\Delta D) = 1$ to 4: **Statically stable breakwaters**

Generally uniform slopes are covered with heavy concrete armour units or natural armour stones. Only limited damage (ie stone displacement) is allowed under severe design conditions. The size, D , is a characteristic diameter of the unit or the median nominal diameter of stones D_{n50} (m). A special type of statically stable breakwater is the Icelandic berm breakwater, with typical values of the stability number of: $H_s/(\Delta D_{n50}) = 2$ to 2.5 (see Section 5.2.2.6).

- $N_s = H/(\Delta D) = 3$ to 6: **Dynamically stable reshaping structures**

These structures are characterised by steeper slopes above and below the still water level and a gentler slope in between. This gently sloping part reduces the wave forces on the armour units. Reshaping structures are often designed with a very steep seaward slope and a horizontal berm just above the (design) still water level. The first storms develop a more gentle profile which remains stable at later stages. The profile changes to be expected are important. Oblique waves may cause incipient longshore transport.

- $N_s = H/(\Delta D) = 6$ to 20: **Dynamic rock slopes and beaches**

The diameter of the armour stones is relatively small and cannot withstand severe wave attack without displacement. The design parameter is the profile that is being developed under different wave boundary conditions. Oblique waves may cause longshore transport.

An overview of the types of structures described above together with the different values of $H/(\Delta D)$ is given in Figure 5.36. A summary of the static and dynamic stability numbers for these structures was given in Table 5.21.

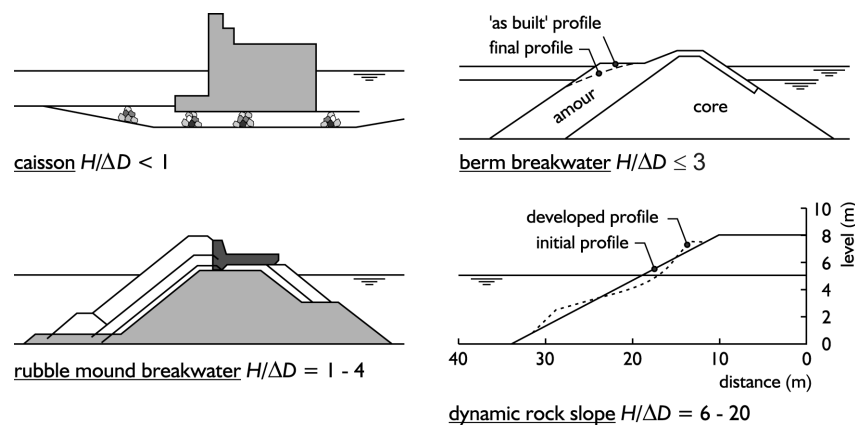


Figure 5.36 Type of structure as a function of $H/(\Delta D)$

This manual focuses on the latter three types of structures presented in Figure 5.36: statically stable breakwaters and slopes, dynamic/reshaping breakwaters, and dynamic rock slopes. Of the caisson breakwaters, only the armourstone foundations are considered.