Claims

1. A breakwater structure, comprising:

a support plate configured to be installed on the seabed and to have an upper surface formed with a plurality of grooves;

a plurality of middle plates arranged in a plurality of layers, each middle plate being configured to have an upper surface and a lower surface formed with a plurality of grooves;

a plurality of pillars configured to be installed vertically between the support plate and a lowermost middle plate out of the plurality of middle plates and between the plurality of middle plates positioned one above the other, so that the pillars extend in alignment with correspondingly opposing grooves of the support plate and the lowermost middle plate, or of the middle plates one above the other;

a tie rod configured to supportively interconnect at least two pillars to group the at least two pillars;

a plurality of fasteners configured to fasten contact portions between the tie rod and each of the at least two pillars; and

a cover plate configured to be stacked on an uppermost middle plate of the plurality of middle plates,

wherein the group of the at least two pillars with the tie rod is modularized to be installed between the plurality of middle plates.

2. The breakwater structure as claimed in claim 1, wherein the tie rod is configured to be placed in parallel with at least one of the middle plate.

3. The breakwater structure as claimed in claim 1, wherein the tie rod is configured to be installed obliquely across the plurality of pillars from one pillar at an upper portion to another pillar at a lower portion.

4. The breakwater structure as claimed in claim 1 further comprising a plurality of through-rods each configured to pass vertically through the middle plates and have one end fixed to the support plate.

5. The breakwater structure as claimed in claim 4, wherein the cover plate is further configured to fix upper ends of the through-rods.

6. The breakwater structure as claimed in claim 1, wherein the plurality of pillars are configured to be installed vertically between the uppermost middle plate and the cover plate.