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(54) **AMPHIBIAN ISLAND**

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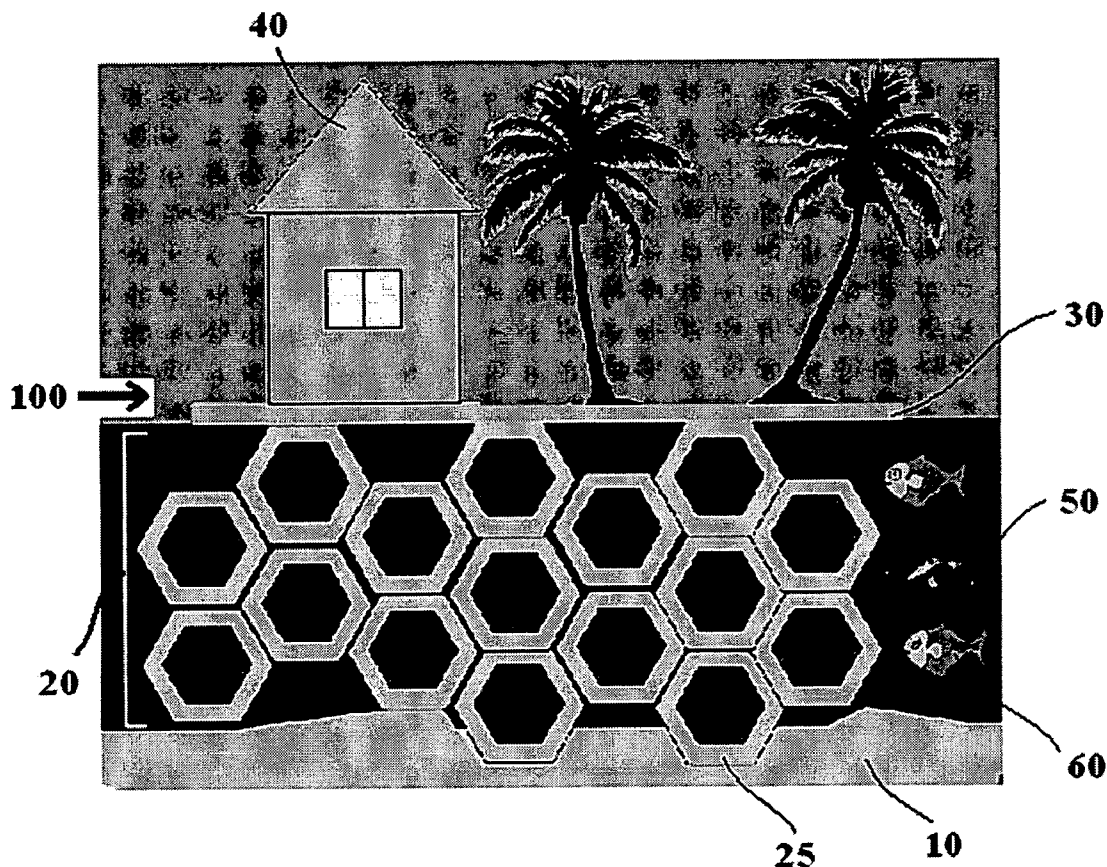
(57) **ABSTRACT**

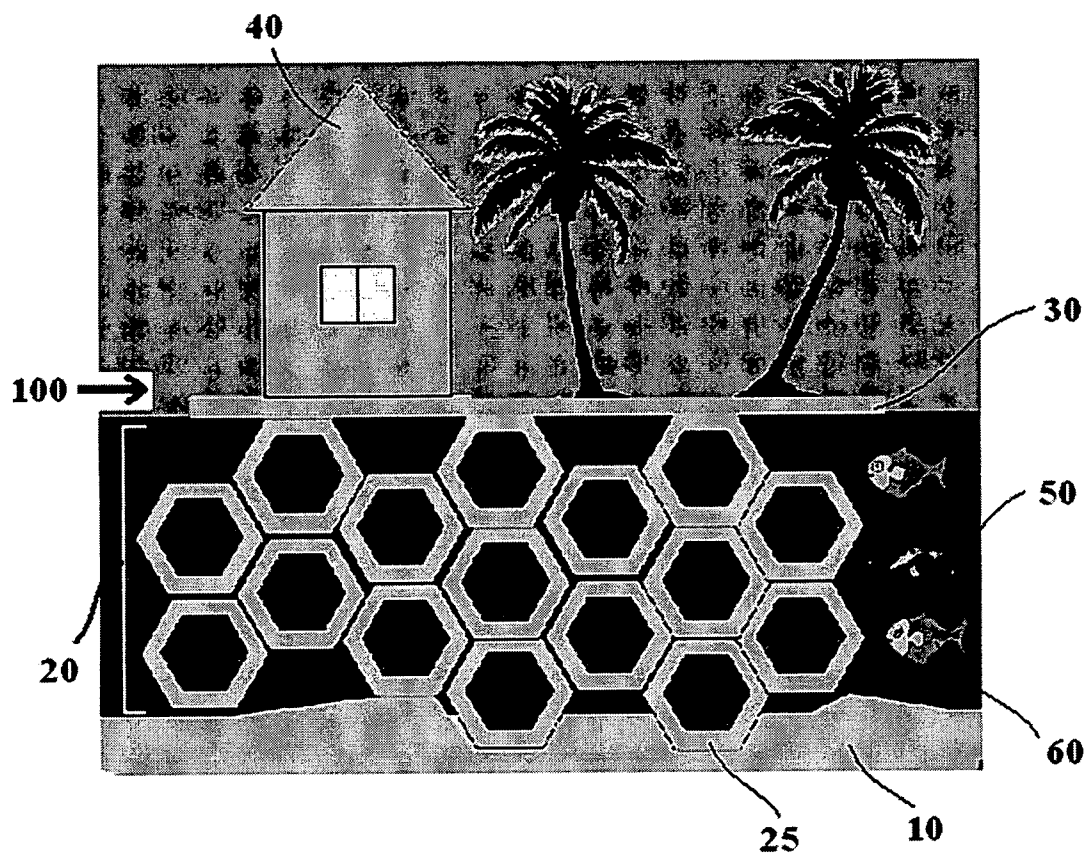
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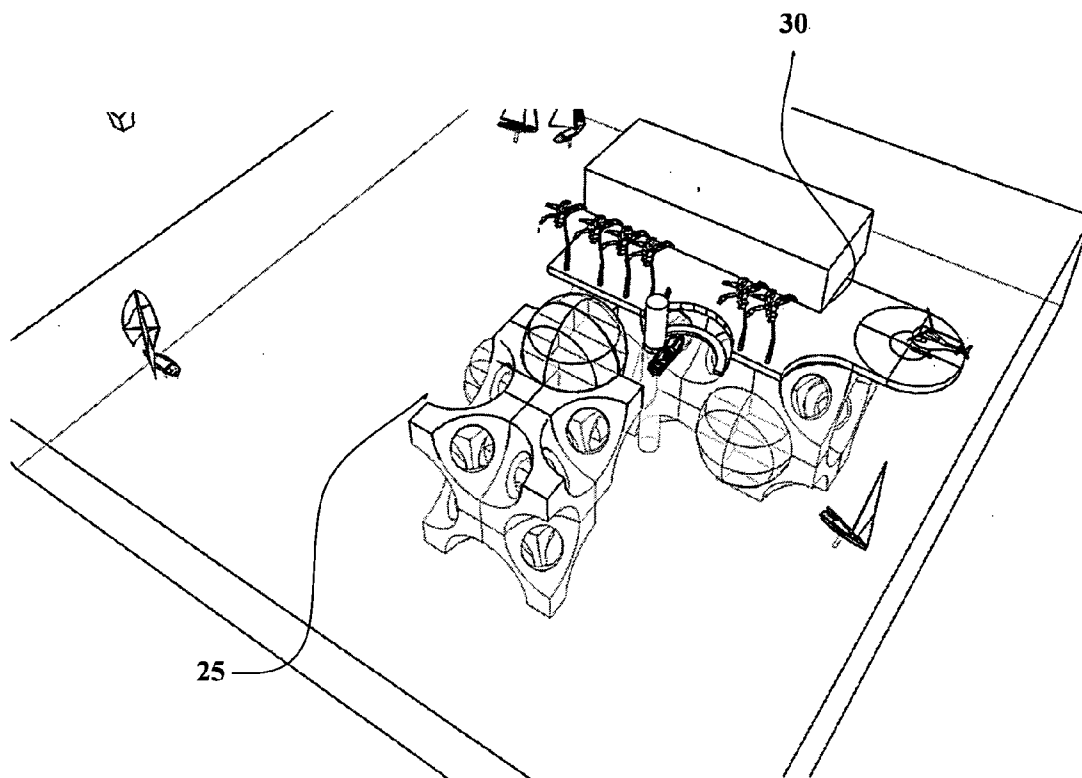
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An amphibian artificial island (100) adapted for habitation of humans and aquatic flora and fauna. The island is integrally configured and comprises : (i) an underwater portion (20) sitting on a seabed adapted to enable sea water (free) flow; (ii) an above-water platform (30); and possibly, (iii) recreation and/or accommodation facilities (40). The unified bi-functional artificial island enables both humans and aquatic flora and fauna coexistence.

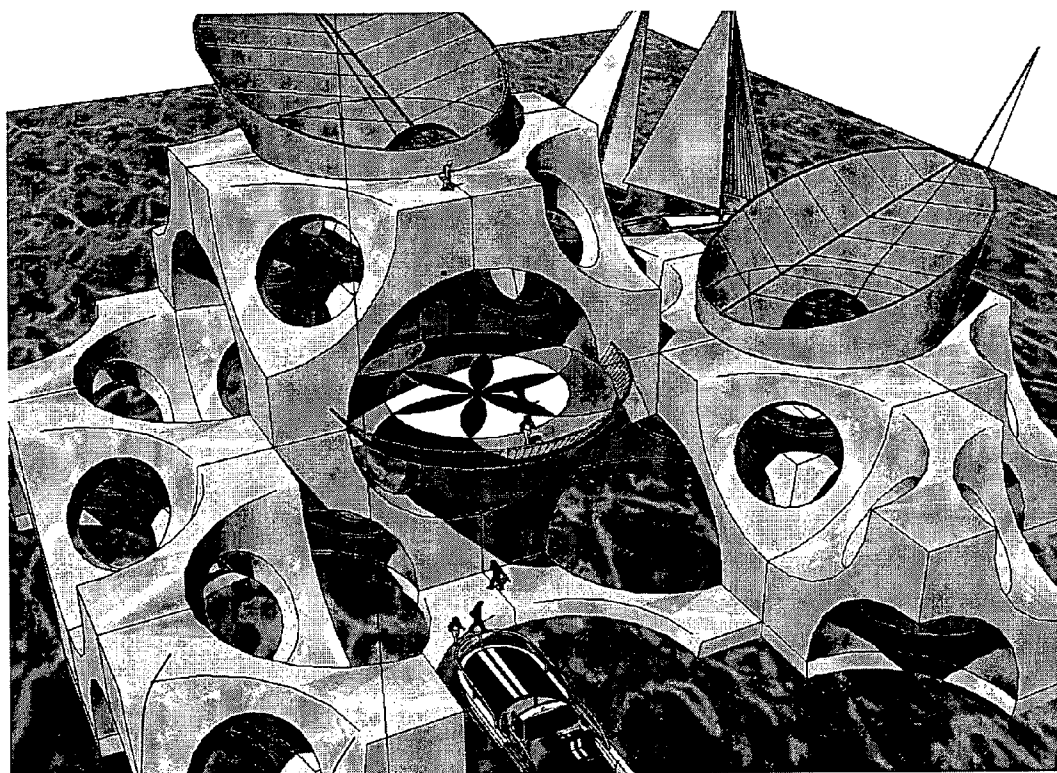




**Fig. 1**



**Fig. 2**



30

25

**Fig. 3**

**AMPHIBIAN ISLAND**

**FIELD OF THE INVENTION**

**[0001]** This invention relates to artificial islands located offshore and methods for their construction and, more particularly, to environmentally friendly artificial islands.

**BACKGROUND OF THE INVENTION**

**[0002]** To many saltwater fishermen and sport divers the term “reef” usually brings to mind a scene of a picturesque tropical coral reef with schools of brightly colored fish swimming through clear waters and a maze of intricate coral heads, swaying sea fans and large sponges. Large predatory fish such as grouper, barracuda and snapper hide in shadowy crevices or feed in wide open areas on the abundant supply of smaller fish and invertebrates on the reef. In this setting, both anglers and divers are able to harvest or simply observe a wide variety of animals from fish to lobsters, often within several hundred yards of shore.

**[0003]** To enhance recreational fishing and sport diving opportunities in coastal waters, and to increase the amount of productive hard-bottom habitat available overall, man can participate (with significant help from nature) in the creation of additional man-made or “artificial” reefs. This is accomplished by placing suitable long-lived, stable and environmentally safe materials (usually steel or concrete) on a selected area of ocean bottom. Once the material is in place it acts in the same way that naturally occurring rock outcroppings do in providing hard substrate necessary in the basic formation of a live-bottom reef community.

**[0004]** Since there is nothing artificial about the myriad of living organisms which eventually colonize and inhabit almost every square inch of these man-made structures, the term artificial reef may really be somewhat misleading. When properly designed, located and constructed with an adequate quantity of stable and durable substrate, man-made reefs can be equally as productive in theory as naturally occurring hard-bottom habitats, limited only by the life-span of the materials utilized. Given the variety of materials currently in use on many artificial reefs, some reef structures in place now could remain productive for the next one to five hundred years.

**[0005]** It is acknowledged that the reefs including artificial reefs are attractive points of interest for holiday-makers and tourists. Lovers of diving are looking for place of residence as close to natural and artificial reefs. Offshore artificial islands are suited to use as resorts for the diving lovers.

**[0006]** An artificial island is an island that has been constructed by humans rather than formed by natural means. They may be created by expanding existing islets, construction on existing reefs, or amalgamating several natural islets into a bigger island.

**[0007]** Early artificial islands can be floating structures in still waters, or wooden or megalithic structures erected in shallow waters (e.g., crannógs and Nan Madol). In modern times artificial islands are usually formed by land reclamation, but some are formed by the incidental isolation of an existing piece of land during canal construction (e.g. Donauinsel and Dithmarschen), or flooding of valleys resulting in the tops of former knolls getting isolated by water (e.g. Barro Colorado Island).

**[0008]** Some recent developments have been made more in the manner of oil platforms (e.g., Sealand and Republic of Rose Island).

**[0009]** Artificial islands may vary widely in scale, from small islets reclaimed solely for supporting a single pillar of a building or structure, to those which support entire communities.

**[0010]** U.S. Pat. No. 6,830,411 ('411) discloses an artificial island formed in a depth of water. The aforesaid island has a side surface comprising an outer perimeter fence. The outer perimeter fence is formed by a plurality of piles driven into the bed of a water body in a pattern, and a plurality of wire mesh sheets, attached to the plurality of piles. The combination of piles and wire mesh sheets forms an island body. A riprap material is placed within the enclosure. Soil covers a top of the riprap material raised from water.

**[0011]** In accordance with '411, the riprap materials filling the island body block water flow inside the artificial island area. The disclosed technical solution damages a surrounding environment situation. Aquatic flora and fauna habitating at a sea bed area occupied by the artificial island are annihilated. Thus, providing an environmentally friendly artificial island adapted for conflict-free habitation of humans and aquatic flora and fauna is a long-felt unmet need.

**SUMMARY OF THE INVENTION**

**[0012]** It is hence one object of the invention to disclose an amphibian artificial island adapted for habitation of humans and aquatic flora & fauna, said island is integrally configured and comprising (i) an underwater portion sitting on a seabed adapted to enable sea water (free) flow; (ii) an above-water platform; and possibly, (iii) recreation and/or accommodation facilities; wherein said unified bi-functional artificial island enables both humans and aquatic flora & fauna coexistence.

**[0013]** It is a core purpose of the invention to provide underwater portion further comprising at least one passageway adapted for sea water flowing via said underwater portion.

**[0014]** Another object of the invention is to disclose the underwater portion assembled of a plurality of prefabricated perforated modular marine structure units capable of interconnection.

**[0015]** A further object of the invention is to disclose the underwater portion furnished with means for forming artificial reefs.

**[0016]** A further object of the invention is to disclose the artificial island further comprising a bridge connecting the artificial island to dry land.

**[0017]** A further object of the invention is to disclose an environmentally friendly deepwater artificial archipelago adapted for conflict-free habitation of humans and aquatic flora and fauna, comprising a plurality of artificial islands. Each artificial island is integrally configured and comprises an underwater portion sitting on a seabed, an above-water platform, and accommodation facilities.

**[0018]** It is a core purpose of the invention to provide the underwater portion further comprising at least on passageway adapted for sea water flowing via said underwater portion.

**[0019]** A further object of the invention is to disclose the archipelago comprising a bridge connecting the artificial island to dry land.

**[0020]** A further object of the invention is to disclose the artificial islands interconnected by a plurality of bridges.

**[0021]** A further object of the invention is to disclose a method of forming an environmentally friendly deepwater artificial island comprising erecting said artificial island.

**[0022]** It is a core purpose of the invention to provide the step of integrally erecting of the island further comprising configuring at least one open-ended water passageway in an underwater portion of said artificial island.

**[0023]** A further object of the invention is to disclose the step of erecting the artificial island comprising forming the underwater portion by means of assembling plurality of prefabricated perforated modular marine structure units capable of interconnection.

**[0024]** A further object of the invention is to disclose a method of forming an archipelago of environmentally friendly deepwater artificial islands comprising integrally erecting said artificial islands.

**[0025]** It is a core purpose of the invention to provide the step of erecting of the island further comprises configuring at least one open-ended water passageway in an underwater portion of each artificial island.

**[0026]** A further object of the invention is to disclose erecting the artificial islands comprising forming the underwater portions of the artificial islands by means of assembling plurality of prefabricated perforated modular marine structure units capable of interconnection.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0027]** In order to understand the invention and to see how it may be implemented in practice, a plurality of embodiments is adapted to now be described, by way of non-limiting example only, with reference to the accompanying drawing, in which

**[0028]** FIG. 1 is a schematic view of an environmentally friendly artificial island;

**[0029]** FIG. 2 is another schematic three-dimensional view of the environmentally friendly artificial island according to yet another design and embodiment; and

**[0030]** FIG. 3 is still another schematic three-dimensional view of the environmentally friendly artificial island according to yet another design and embodiment of the invention.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0031]** It will be apparent to one skilled in the art that there are several embodiments of the invention that differ in details of construction, without affecting the essential nature thereof, and therefore the invention is not limited by that which is illustrated in the figures and described in the specification, but only as indicated in the accompanying claims, with the proper scope determined only by the broadest interpretation of said claims.

**[0032]** We define the following terms to describe the invention:

**[0033]** The term “artificial reef” hereinafter refers to a man-made structure, typically built for the purpose of promoting marine life in areas of generally featureless bottom. Artificial reefs may also serve to hydrodynamics for surfing or to control beach erosion.

**[0034]** The term “artificial island” hereinafter refers to an island that has been constructed by humans rather than formed by natural means.

**[0035]** The term “perforated modular marine structure unit” hereinafter refers to a structural module for underwater construction, which has cut-outs or passages such that when

immersed in a body of water, the water may pass through it. The marine modular structure disclosed in U.S. Pat. No. 7,226,245 is an example of the aforesaid perforated modular marine structure unit.

**[0036]** Reference is now made to Figures (FIG. 1-3), showing a set of preferred embodiments of the current invention, the embodiments differ in their design yet pertain to the same inventive pith and marrow. An artificial island **100** comprises integrally configured an underwater portion **20**, an above-water platform **30**, and accommodation facilities **40**. The underwater portion **20** further comprises at least one open-ended passageway and sits directly on a surface of a seabed **10**. In accordance with one embodiment of the current invention, the underwater portion **20** is assembled from perforated modular units **25**. The above-water platform **30** being mechanically fixated to the underwater portion **20** carries the accommodation facilities **40** on upper surface of the aforesaid platform **30**. As seen in Figure, marine fauna **60** and a scuba diver **50** are indicated in sea water.

**[0037]** In accordance with another embodiment of the current invention, the underwater portion **20** is furnished with means for forming artificial reefs. The aforesaid means constitutes special metal, plastic or any other additional members mechanically connected to perforated modular units **25** to increase an area of contacting sea water to the underwater portion **20**.

**[0038]** As acknowledged, the reefs including artificial ones are points of interest for vacationers and, specifically, for scuba divers. Specifically, the reef islands are very attractive for spear-fishing. It is known that the reefs have very high fish food potential. Additionally, they positively influence on the seabed erosion. It should be emphasized that the disclosed technical solution is environmentally friendly. The aforesaid technical solution provides conflict-free habitation of humans and aquatic flora and fauna.

**[0039]** In accordance with another embodiment of the current invention, the artificial island is connected to dry land by means of a bridge.

**[0040]** In accordance with a further embodiment of the current invention, a plurality of the artificial islands forms an archipelago of the artificial islands comprising, in turn, underwater portions sitting on a seabed, an above-water platforms, and accommodation facilities adapted for holiday-maker living.

**[0041]** Analogously to the isolated artificial island, the underwater portion of each island of the archipelago is assembled from a plurality of prefabricated perforated modular marine structure units capable of interconnection.

**[0042]** In accordance with a further embodiment of the current invention, the artificial islands of the aforesaid archipelago are interconnected by means of the bridges. Additionally, at least one artificial island is connected by the bridge to dry land.

**[0043]** In accordance with a further embodiment of the current invention, the aforesaid perforated structure can be used for creating underwater habitat for mankind.

**[0044]** In accordance with a further embodiment of the current invention, a method of forming an environmentally friendly deepwater artificial island comprises integrally erecting said artificial island.

**[0045]** The main innovation is that the step of erecting of the artificial island further comprises configuring at least one open-ended water passageway in an underwater portion of said artificial island.

[0046] It should be emphasized that erecting the underwater portion of the artificial island does not damage the surrounding environment. The perforated modular structure does not block sea water flowing. On the other hand, the aforesaid structure is a basis for artificial reef that, in turn, stabilizes sea bed relief and increases the fish food potential. The aforesaid perforated support structures of the artificial islands may be used for creating a fauna sanctuary in a resort area. Thus, the disclosed technical solution settles a contradiction between human activity and nature conservation.

[0047] In accordance with a further embodiment of the current invention the erecting the artificial island comprises forming the underwater portion by means of assembling plurality of prefabricated perforated modular marine structure units capable of interconnection.

[0048] In accordance with a further embodiment of the current invention, a method of forming an archipelago of environmentally friendly deepwater artificial islands analogously comprises integrally erecting the artificial islands. The step of erecting of each island also comprises configuring at least one open-ended water passageway in an underwater portion.

[0049] In accordance with a further embodiment of the current invention, erecting the artificial archipelago comprises forming the underwater portions of the artificial islands by means of assembling plurality of prefabricated perforated modular marine structure units capable of interconnection.

1. An amphibian artificial island adapted for habitation of humans and aquatic flora & fauna, said island is integrally configured and comprising (i) an underwater portion sitting on a seabed adapted to enable sea water (free) flow; (ii) an above-water platform; and possibly, (iii) recreation and/or accommodation facilities; wherein said unified bi-functional artificial island enables both humans and aquatic flora & fauna coexistence.

2. The artificial island according to claim 1, wherein said underwater portion is assembled of a plurality of prefabricated perforated modular marine structure units capable of interconnection.

3. The amphibian artificial island according to claim 1, wherein said underwater portion is furnished with means for forming artificial reefs.

4. The amphibian artificial island according to claim 1, wherein said artificial island further comprising a bridge connecting said artificial island to dry land.

5. An environmentally friendly deepwater artificial archipelago adapted for conflict-free habitation of humans and aquatic flora and fauna, comprising a plurality of artificial islands; each said artificial island is integrally configured and comprises an underwater portion sitting on a seabed, an above-water platform, and accommodation facilities; wherein said underwater portion further comprises at least on passageway adapted for sea water flowing via said underwater portion.

6. The artificial archipelago according to claim 5, wherein said underwater portion of each said artificial island is assembled of a plurality of prefabricated perforated modular marine structure units capable of interconnection.

7. The artificial archipelago according to claim 5, wherein said archipelago comprises a bridge connecting said artificial island to dry land.

8. The artificial archipelago according to claim 5, wherein said artificial islands are interconnected by a plurality of bridges.

9. A method of forming an environmentally friendly deepwater artificial island comprising integrally erecting said artificial island wherein said step of erecting of said island further comprises configuring at least one open-ended water passageway in an underwater portion of said artificial island.

10. The method according to claim 9, wherein said erecting said artificial island comprises forming said underwater portion by means of assembling plurality of prefabricated perforated modular marine structure units capable of interconnection.

11. A method of forming an archipelago of environmentally friendly deepwater artificial islands comprising integrally erecting said artificial islands wherein said step of erecting of said island further comprises configuring at least one open-ended water passageway in an underwater portion of each said artificial island.

12. The method according to claim 11, wherein said erecting said artificial islands comprises forming said underwater portions of said artificial islands by means of assembling plurality of prefabricated perforated modular marine structure units capable of interconnection.

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