CLAIMS

What is claimed is:

1. A buoyant structure comprising: a hull having a main deck, an upper cylindrical side section, an upper frustoconical side section, a cylindrical neck, a lower frustoconical side section that extends from the cylindrical neck, a lower ellipsoidal section, an ellipsoid keel, and a fin-shaped appendage secured to a lower and an outer portion of the exterior of the ellipsoid keel,

wherein the cylindrical neck is arranged between the upper frustoconical side section and the lower frustoconical side section,

wherein the cylindrical neck has a horizontal cross-section that is substantially uniform along a longitudinal axis of the cylindrical neck,

wherein the hull forms an ellipsoidal planform;

wherein the cylindrical neck has a height that is sufficiently shorter than the height of the upper frustoconical side section such that the buoyant structure has a low center of gravity; and

wherein the buoyant structure having the low center of gravity and the hull having an enhanced metacentric height provide large righting moments that counter pitch and roll of the buoyant structure.

2. The buoyant structure of claim 1, wherein a pendulum is positioned to move between a transport depth and an operational depth, and wherein the pendulum is configured to dampen movement of a watercraft as the watercraft moves from side to side in water.

3. The buoyant structure of claim 1, wherein the main deck has a superstructure comprising at least one member selected from the group consisting of: crew accommodations, a heliport, a crane, a control tower, a dynamic position system in the control tower, and an aircraft hangar.

4. The buoyant structure of claim 1, wherein the hull has a berthing facility and catenary mooring lines for mooring the buoyant structure to a seafloor.

5. The buoyant structure of claim 1, further comprising a gangway for traversing between the buoyant structure and a watercraft.

6. The buoyant structure of claim 1, comprising the hull with a center of gravity below a center of buoyancy to provide an inherent stability to the buoyant structure.

7. The buoyant structure of claim 1, wherein the upper frustoconical side section engages the cylindrical neck, wherein the buoyant structure comprises:
   a. the upper cylindrical side section extending downwardly from the main deck; and
   b. the upper frustoconical side section located below the upper cylindrical side section and maintained to be above a water line for a transport depth and partially

   below a water line for an operational depth of the buoyant structure; and
   wherein the upper frustoconical side section has a gradually reducing diameter from a diameter of the upper cylindrical side section.

8. The buoyant structure of claim 1, wherein the lower ellipsoidal section forms at least part of a lower hull section having a first diameter D_1 that is the largest diameter of the hull.