CLAIMS:

1. A wave pool, comprising:

a container filled with water and sufficiently sized to facilitate recreational activities for patrons therein; and

a wave generation mechanism disposed at a location proximate a center of the container, wherein the wave generation mechanism is configured to generate waves that propagate in the water outward from the wave generation mechanism toward a perimeter of the container by displacing the water such that wave energy moves outward from the wave generation mechanism in multiple-directions.

2. The wave pool of claim 1, wherein the wave generation mechanism comprises a plurality of displacement devices or a single displacement device with a plurality of contact surfaces, wherein each of the plurality of displacement devices or contact surfaces is configured to displace the water in a different direction away from the wave generation mechanism.

3. The wave pool of claim 1, wherein at least a portion of the container is deepest proximate the center of the container and gradually becomes more shallow toward the perimeter of the container until an area surrounding the container is reached that defines a shoreline for the wave pool.

4. The wave pool of claim 1, comprising at least a substantially 360 degree beach front around the container, wherein the wave generation mechanism is configured to generate waves that propagate outward toward the beach front in at least four different directions.

5. The wave pool of claim 1, wherein the wave generation mechanism comprises a plurality of displacement devices positioned in a polygonal arrangement such that each displacement device is configured to generate waves in a different direction.

6. The wave pool of claim 1, comprising a platform integrated with the wave generation mechanism and configured to support the park patrons or maintenance workers.

7. The wave pool of claim 1, comprising a porous barrier disposed at least substantially around the wave generation mechanism such that water can pass through the porous barrier and such that the patrons in an area of the container between the perimeter and the porous barrier are blocked from access to the wave generation mechanism.

8. The wave pool of claim 1, wherein the wave generation mechanism comprises a single displacement device with an angled surface or a plurality of different surfaces extending around the displacement device and configured to contact the water such that water is displaced at different times when the displacement device is actuated.

9. The wave pool of claim 1, wherein the wave generation mechanism comprises a plurality of displacement devices configured to be activated sequentially to generate a plurality of waves that combine to form a spiral wave around the wave generation mechanism.

10. The wave pool of claim 1, comprising a water capture system configured to cycle water to the wave generation mechanism from locations within the container, wherein the water capture system comprises:

water capture drains positioned within the container; and

transport features configured to receive captured water from the water capture drains and to facilitate flow of the captured water to the wave generation mechanism.

11. The wave pool of clam 10, wherein the transport features comprise piping disposed beneath or along a bottom of the container, and wherein the water capture drains are positioned proximate the perimeter.

12. The wave pool of claim 10, wherein the transport features comprise a network of flow paths along the perimeter that feed at least one central transport feature configured to facilitate flow of the captured water to the wave generation mechanism.

13. The wave pool of claim 10, wherein the wave generation mechanism comprises a pumping system and collection reservoir, the pumping system configured to move the captured water received from the transport features into the collection reservoir.

14. The wave pool of claim 10, comprising a structure extending from the perimeter to the wave generation mechanism, wherein the barrier houses one or more of the transport features that are configured to facilitate flow of the captured water to the wave generation mechanism.

15. The wave pool of claim 1, wherein the wave generation mechanism comprises a plunger system configured to displace the water by vertically inserting, pitching, or rolling a plunger in the water.

16. A wave generation system, comprising:

a wave generation mechanism configured to be positioned centrally within a container filled with water that is sufficiently sized to facilitate recreational activities for patrons within the container, the wave generation mechanism comprising:

at least one actuator configured to activate at least one water-displacement medium to displace the water such that waves are propagated through the water; and

a directional feature configured to direct the waves away from the wave generation mechanism after activation of the actuator such that the waves are propagated outward from the wave generation mechanism in multiple directions.

17. The wave generation system of claim 16, comprising a single plunger that functions as the water-displacement medium, wherein the directional feature comprises surface features of the plunger.

18. The wave generation system of claim 17, wherein the surface features are configured to impact the water non-uniformly.

19. The wave generation system of claim 16, comprising a plurality of plungers with surface features or associated pathways that function as the directional feature.

20. The wave generation system of claim 16, wherein the actuator comprises a release mechanism configured to raise or lower a portion of a containment feature such that accumulated water disposed within the containment feature is released to flow out of the containment feature in multiple directions.

21. The wave generation system of claim 20, wherein the portion of the containment feature comprises a generally cylindrical wall that is configured to couple with a seal at a base of the generally cylindrical wall.

22. The wave generation system of claim 16, wherein the actuator comprises a valve configured to release water or compressed air into a plurality of flow paths arrangement around the wave generation mechanism, wherein the plurality of flow paths function as the directional feature.

23. The wave generation system of claim 16, comprising:

the container; and

a water capture system configured to cycle water to the wave generation mechanism from locations within the container, wherein the water capture system comprises:

water capture drains positioned proximate a perimeter of the container; and

transport features configured to receive captured water from the water capture drains and to facilitate flow of the captured water to the wave generation mechanism.

24. A method of generating waves from a central location within a wave pool to a perimeter of the pool, comprising:

displacing water in the wave pool with a wave generation mechanism positioned in the central location such that waves are propagated in the water; and

controlling a direction of the waves with directional features such that the waves propagate outwardly in multiple directions from the wave generation mechanism to a shoreline area that is at least substantially surrounding the wave generation mechanism.

25. The method of claim 24, comprising coordinating wave propagation such that a plurality of waves combine to form a spiral wave.

26. The method of claim 24, comprising generating different types of waves in different directions such that different regions of the shoreline area are impacted differently.

CLAIMS

What is claimed is:

1. A wave pool (100), comprising:

a container (120) configured to hold water and sufficiently sized to facilitate recreational activities for patrons therein; and

a wave generation mechanism (104) disposed at a location proximate a center of the container (120), wherein the wave generation mechanism (104) is configured to generate waves that propagate in the water outward from the wave generation mechanism (104) toward a perimeter (106) of the container (120) by displacing the water such that wave energy moves outward from the wave generation mechanism (104) in multiple-directions;

characterised in that,

the wave pool (100) comprises a water capture system (110) configured to cycle the water from the direction of the perimeter (106) of the container (120) back toward the direction of the wave generation mechanism (104), wherein the water capture system (110) comprises:

water capture drains (130) positioned within the container (120) and configured to capture the water; and

a transport feature (140) configured to receive the captured water from the water capture drains (130) and to facilitate flow of the captured water to the wave generation mechanism (104).

2. The wave pool (100) of claim 1, comprising at least a substantially 360 degree beach front around the container (120), wherein the wave generation mechanism (104) is configured to generate waves that propagate outward toward the beach front in at least four different directions.

3. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises a plurality of displacement devices positioned in a polygonal arrangement such that each displacement device is configured to generate waves in a different direction.

4. The wave pool (100) of claim 1, comprising a porous barrier disposed at least

substantially around the wave generation mechanism (104) such that water can pass through the porous barrier and such that the patrons in an area of the container (120) between the perimeter and the porous barrier are blocked from access to the wave generation mechanism (104).

5. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises a single displacement device with an angled surface or a plurality of different surfaces extending around the displacement device and configured to contact the water such that water is displaced at different times when the displacement device is actuated.

6. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises a plurality of displacement devices configured to be activated sequentially to generate a plurality of wave patterns, and wherein the plurality of wave patterns comprises a spiral wave formed around the wave generation mechanism (104).

7. The wave pool (100) of clam 1, wherein the transport features comprise piping disposed beneath or along a bottom of the container (120), and wherein the water capture drains (130) are positioned proximate the perimeter (106).

8. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises a plunger system configured to displace the water by vertically inserting, pitching, or rolling a plunger in the water.

9. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises a single plunger that functions as a water-displacement medium, wherein surface features of the plunger direct the waves away from the wave generation mechanism (104).

10. The wave pool (100) of claim 9, wherein the surface features are configured to impact the water non-uniformly.

11. The wave pool (100) of claim 1, comprising a plurality of plungers with surface features or associated pathways that function to direct the waves away from the wave

generation mechanism (104).

12. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises an actuator including a release mechanism configured to raise or lower a portion of a containment feature such that accumulated water disposed within the containment feature is released to flow out of the containment feature in multiple directions.

13. The wave pool (100) of claim 1, wherein the wave generation mechanism (104) comprises an actuator including a valve configured to release water or compressed air into a plurality of flow paths arrangement around the wave generation mechanism (104).

14. A method of generating waves from a central location within a wave pool (100) to a perimeter (106) of the wave pool (100), comprising:

displacing water in the wave pool (100) via a wave generation mechanism (104) positioned in the central location such that waves are propagated in the water;

controlling a direction of the waves via directional features of the wave generation mechanism (104) such that the waves propagate outwardly in multiple directions from the wave generation mechanism (104) to a shoreline area that is at least substantially surrounding the wave generation mechanism (104);

characterised by

cycling the water from the direction of the perimeter (106) of the wave pool (100) back toward the direction of the wave generation mechanism (104) via a water capture system (110) of the wave pool (100):

capturing the water via water capture drains (130) positioned within the wave pool (100); and

receiving the captured water from the water capture drains (130) to facilitate flow of the captured water to the wave generation mechanism (104).