CLAIMS

1. A system for the partial confinement of a water body that creates a thermal barrier and heat plug between two distinct areas within the water body (1) while maintaining the concept of being in the same water body, comprising:

- A first barrier element FBE (2a) positioned from the bottom (4) of the water body (1) in a substantially upwardly position, wherein the first barrier element (2a) has a vertical length of up to about 95% of the water depth of the water body (1) where such first barrier element is positioned;
- A second barrier element SBE (2b) positioned from the surface (6) of the water body (1) in a substantially downwardly position, where the second barrier element (2b) has a submerged depth of up to 95% of the water depth of the water body (1) where such second barrier unit is positioned;

wherein the first and second barrier elements form an overlap length (OL), and wherein the second barrier unit (2b) is located at a horizontal distance (HD) from the first barrier element (2a), which creates a transition zone (4); and wherein the horizontal distance (HD) is greater than zero.

2. A system for the partial confinement of a water body according to claim 1, wherein the horizontal distance (HD) is equal to, or lower than the overlap length (OL) between the first and second barrier elements.

3. A system for the partial confinement of a water body according to claim 1, wherein the horizontal distance (HD) and the overlap length (OL) are in a ratio of about 1:1 or about 2:3, or about 4:5 or about 1:3 or about 1:2.

4. A system for the partial confinement of a water body according to claim 1, wherein the horizontal distance (HD) is at least 20 cm from the first barrier element (2a)

5. A system for the partial confinement of a water body according to claim 1, wherein the overlap length (OL) is at least 20 cm.

6. A system for the partial confinement of a water body according to claim 1, wherein the FBE (2a) has a vertical length of up to about 85%, about 75% or about 65 % of the depth of the water body where such first barrier element (2a) is positioned and wherein the FBE (2a) has a vertical length of preferably at least 20%, or at least 35% or at least 50% of the depth of the water of the water body where it is positioned.

7. A system for the partial confinement of a water body according to claim 1, wherein the SBE (2b) has a submerged depth of up to about 85%, 75% or 65 % of the depth of the water body where such second barrier element (2b) is positioned and wherein the FBE (2a) has a submerged depth (SD) of preferably at least 20%, or at least 35% or at least 50% of the depth of the water of the water body where it is positioned.

8. A system for the partial confinement of a water body according to claim 1, further comprising connecting means (12) that connect the FBE and the SBE with each other in order to lower variations in the horizontal distance (HD), and wherein the connecting means (12) connect the two barrier elements and do not exert a significant flow change within the transition zone.

9. A system for the partial confinement of a water body according to claim 8, wherein the connecting means (12) are selected from the group comprising a string, a cord, a spring, a snap line, a pole, rods, separators and combinations thereof.

10. A system for the partial confinement of a water body according to claim 8, whesrein the connecting means are positioned throughout at least one point along the at least two barriers, and wherein the connecting means are positioned between each other at a distance that is at least the average horizontal distance (HD).

11. A system for the partial confinement of a water body according to claim 1, wherein the first barrier element FBE (2a) comprises affixing means to be fixed to the bottom of the body of water, wherein the affixing means create a seal between the bottom of the body of water and the first barrier element FBE (2a).

12. A system for the partial confinment of a water body according to claim 11, wherein the first barrier element FBE (2a) comprises affixing means selected from the group comprising a fastener, a screw, a bolt, hinge, a joint, a weld, a seam, a webbing, an adhesive, a strip, a tape and combinations thereof.

13. A system for the partial confinment of a water body according to claim 11, wherein the first barrier element FBE (2a) is affixed and/or anchored to the bottom through weights, or embedded to the bottom.

14. A system for the partial confinment of a water body according to claim 11, wherein the first barrier element FBE (2a) comprises buoyancy means (2d) to facilitate the FBE (2a) to maintain an upright position and to lower the influence of water currents that may push the FBE (2a) from one side to another, wherein buoyancy means are selected from the group comprising one or several buoys, a floation line, conventional floating means and combinations thereof.

15. A system for the partial confinment of a water body according to claim 14, wherein the first barrier element FBE (2a) comprises surface connecting means (2c) that connect the upper portion of the FBE (2a) to buoyancy means (2d), which are selected from a string, a cord, a spring, a snap line, rods, separators, a tether assembly and combinations thereof.

16. A system for the partial confinement of a water body according to claim 1, wherein the second barrier element SBE (2b) comprises buoyancy means (2e) affixed to its upper portion, the buoyancy means selected from the group comprising: one or several buoys, a flotation line, conventional floating means and combinations thereof and wherein the buoyancy means are positioned either above the surface of the water, below the surface of the water or partially submerged

17. A system for the partial confinement of a water body according to claim 1, wherein the second barrier element SBE (2b) comprises bottom anchoring means (2f) that anchor the second barrier element SBE (2b) to the bottom of the water body without exerting a significant flow change, and wherein the bottom anchoring means (2f) include a tether assembly, a string, a cord, a chain, a pole, a spring, a snap line, rods, separators, netting

materials, and combinations thereof, which can be fixed to the bottom of the water body by means through a fixed support, a dock or combinations thereof.

18. A system for the partial confinement of a water body according to claim 1, wherein the second barrier element SBE (2b) is fully or partially embedded to the bottom, and includes materials and elements with perforations to facilitate the flow of water through the SBE or under the SBE (2d).

19. A system for the partial confinement of a water body according to claim 17, wherein buoyancy means (2e) maintain the SBE within its desired position and act as a buoyancy line to indicate swimmers and bathers within the body of water the limit of the partially confined zone, the limit of the swimming and bathing zone or as any delimiting line that is required.

20. A system for the partial confinement of a water body according to claim 1, wherein the FBE and SBE preferably comprise, or are made of, materials that allow the confinement of water that is in contact with said FBE and SBE, and wherein the FBE and SBE are made of any suitable material having a density close to that of the water in the water body to be partically confined.

21. A system for the partial confinement of a water body according to claim 1, wherein the FBE and SBE are constructed from materials including light weight materials having either a hollow or filled interior, and preferably a weight located inside and/or outside of the hollow or filled interior in a position to facilitate maintaining the elements in an upright orientation in the water, and, preferably a coupling element at opposite ends allowing adjacent barrier elements to be connected end-to-end.

22. A system for the partial confinement of a water body according to claim 1, wherein the FBE and SBE are constructed from materials including, but not limited to Polyethylene Terephthalate, High-Density Polyethylene, Polyvinyl Chloride, Polyvinyl Chloride, Polypropylene, Polystyrene and mixtures thereof.

23. A system for the partial confinement of a water body according to claim 1, wherein the FBE and SBE are made from materials without insulating properties.

24. A system for the partial confinement of a water body according to claim 1, wherein the FBE and SBE are constructed using heavier weight or density materials, such as concrete, cement or combinations thereof.

25. Localized heating system for creating partially confined heated zones (3) within larger water bodies (1), comprising:

a) A first barrier element FBE (2a) positioned from the bottom (4) of the water body (1) in a substantially upwardly position, wherein the first barrier element (2a) has a vertical length of up to about 95% of the water depth of the water body (1) where such first barrier element is positioned;

b) A second barrier element SBE (2b) positioned from the surface (6) of the water body (1) in a substantially downwardly position, where the second barrier element (2b) has a submerged depth of up to 95% of the water depth of the water body (1) where such second barrier unit is positioned, wherein the first and second barrier elements form an overlap length (OL), and wherein the second barrier unit (2b) is located at a horizontal distance (HD) from the first barrier element (2a), which creates a transition zone (4); and wherein the horizontal distance (HD) is greater than zero;

c) At least one water intake point (9) to withdraw water from the water body (1);

d) At least one heated water discharge point (8) to discharge heated water into the partially confined zone (3); and

e) At least one heating system (7) configured to increase the temperature of the water flow withdrawn from the water intake point (9) and then returns the heated water flow to the partially confined zone (3) through at least one heated water discharge point (8).

26. Localized heating system according to claim 25, wherein the at least one water withdrawal point (9) withdraws water from the partially confined heated zone (3).

27. Localized heating system according to claim 25, wherein the water body has a surface of at least 5,000 m^2, more preferably at least 10,000 m^2, even more preferably at least 30,000 m^2, and most preferably at least 50,000 m^2.

28. Localized heating system according to claim 25, wherein the FBE (2a) has a vertical length of up to about 85%, about 75% or about 65 % of the depth of the water body where such first barrier element (2a) is positioned and wherein the FBE (2a) has a vertical length of preferably at least 20%, or at least 35% or at least 50% of the depth of the water of the water body where it is positioned.

29. Localized heating system according to claim 25, wherein the SBE (2b) has a submerged depth of up to about 85%, 75% or 65 % of the depth of the water body where such second barrier element (2b) is positioned and wherein the FBE (2a) has a submerged depth (SD) of preferably at least 20%, or at least 35% or at least 50% of the depth of the water of the water body where it is positioned.

30. Localized heating system according to claim 25, wherein the system is suitable to be used in natural water bodies like the sea, lakes, lagoons, reservoirs, estuaries, and/or ponds, and/or wherein the system is suitable to be used in man-made water features, such as high transparency man-made lagoons constructed with recent technologies.

31. Localized heating system according to claim 25, wherein the first and second barrier elements are are attached or affixed to the edge of the water body in a zone where a slope of between 0% and 30% is present.

32. Localized heating system according to claim 25, wherein the first and second barrier elements are are attached or affixed to a wall of the body of water.

33. Localized heating system according to claim 25, wherein the first and second barrier elements are positioned within the water body at a distance of at least 5 m from the edge of the water body.

34. Localized heating system according to claim 25, wherein the first and second barrier elements are positioned within the water body so that the partially confined area has a volume of at least 100 m^3.

35. Localized heating system according to claim 25, wherein the heating system (7) comprises at least a heat pump.

36. Localized heating system according to claim 25, wherein the heating system (7) comprises at least a heat exchanger.

37. Localized heating system according to claim 35, wherein the heat exchanger uses energy from an energy generating source, such as an oil, electricity, gas or carbon energy source.

38. Localized heating system according to claim 25, wherein the horizontal distance (HD) is equal to, or lower than the overlap length (OL) between the first and second barrier elements.

39. Localized heating system according to claim 25, wherein the horizontal distance (HD) and the overlap length (OL) are in a ratio of about 1:1 or about 2:3, or about 4:5 or about 1:3 or about 1:2.

40. Localized heating system according to claim 25, wherein the horizontal distance (HD) is at least 20 cm from the first barrier element (2a) and wherein the overlap length (OL) is at least 20 cm.

41. Localized heating system according to claim 24, further comprising connecting means (12) that connect the FBE and the SBE with each other in order to lower variations in the horizontal distance (HD), wherein the connecting means (12) connect the two barrier elements and do not exert a significant flow change within the transition zone.

42. Localized heating system according to claim 25, wherein the connecting means (12) are selected from the group comprising a string, a cord, a spring, a snap line, a chain, a pole. rods, separators, and combinations thereof.

43. Localized heating system according to claim 25, wherein the connecting means are positioned throughout at least one point along the at least two barriers, and wherein the connecting means are positioned between each other at a distance that is at least the average horizontal distance (HD).

44. Localized heating system according to claim 24, wherein the first barrier element FBE (2a) comprises bottom affixing means 2g to be fixed to the bottom of the body of water, the affixing means are selected from the group comprising: a fastener, a screw, a bolt, hinge, a joint, a weld, a seam, a webbing, an adhesive, a strip, a tape and combinations thereof and wherein preferably, the affixing means create a seal between the bottom of the body of water and the first barrier element FBE (2a)

45. Localized heating system according to claim 44, wherein the bottom affixing means (2g) comprises a hinge mechanism to retract the barrier element.

46. Localized heating system according to claim 44, wherein the first barrier element FBE (2a) is affixed and/or anchored to the bottom through weights, or embedded to the bottom.

47. Localized heating system according to claim 44, wherein the first barrier element FBE (2a) comprises buoyancy means (2d) to facilitate the FBE (2a) to maintain an upright position and to lower the influence of water currents that may push the FBE (2a) from one side to another, wherein buoyancy means are selected from the group comprising one or several buoys, a floation line, conventional floating means and combinations thereof

48. Localized heating system according to claim 47, wherein the first barrier element FBE (2a) comprises surface connecting means (2c) that connect the upper portion of the FBE (2a) to buoyancy means (2d), which are selected from a string, a cord, a spring, a snap line, rods, separators, a tether assembly and combinations thereof

49. Localized heating system according to claim 25, wherein the second barrier element SBE (2b) comprises buoyancy means affixed to its upper portion, the buoyancy means selected from the group comprising a buoy and a floation line and combinations thereof.

50. Localized heating system according to claim 25, wherein the second barrier element SBE (2b) comprises bottom anchoring means (2f) that anchor the second barrier element SBE (2b) to the bottom of the water body without exerting a significant flow change.

51. Localized heating system according to claim 50, wherein bottom anchoring means (2f) include a tether assembly, a string, a cord, a chain, a pole, a spring, a snap line, rods, separators, netting materials, and combinations thereof, which can be fixed to the bottom of the water body by means through a fixed support, a dock or combinations thereof.

52. Localized heating system according to claim 50, wherein the second barrier element SBE (2b) is fully or partially embedded to the bottom, and includes materials and elements with perforations to facilitate the flow of water through the SBE or under the SBE (2d).

53. Localized heating system according to claim 25, wherein the second barrier element SBE (2b) comprises buoyancy means (2e) affixed to its upper portion, the buoyancy means (2e) selected from the group comprising one or several buoys, a flotation line, conventional floating means and combinations thereof and wherein the buoyancy means are positioned either above the surface of the water, below the surface of the water or partially submerged.

54. Localized heating system according to claim 25, wherein buoyancy means (2e) serve as a means to maintain the SBE within its desired position as well as to act as a buoyancy line to indicate swimmers and bathers within the body of water the limit of the partially confined zone, the limit of the swimming and bathing zone or as any delimiting line that is required.

55. Localized heating system according to claim 25, wherein the FBE and SBE preferably comprise, or are made of, materials that allow the confinement of water that is in contact with said FBE and SBE.

56. Localized heating system according to claim 25, wherein the FBE and SBE are made of any suitable material having a density close to that of the water in the lagoon to be partically confined.

57. Localized heating system according to claim 25, wherein the FBE and SBE may be constructed include, but are not limited to light weight materials having either a hollow or filled interior, and preferably a weight located inside and/or outside of the hollow or filled interior in a position to facilitate maintaining the elements in an upright orientation in the water, and, preferably a coupling element at opposite ends allowing adjacent barrier elements to be connected end-to-end.

58. Localized heating system according to claim 25, wherein the FBE and SBE may be constructed include, but are not limited to Polyethylene Terephthalate, High-Density Polyethylene, Polyvinyl Chloride, Polyvinyl Chloride, Polypropylene, Polystyrene and mixtures thereof.

59. Localized heating system according to claim 25, wherein the FBE and SBE are made from materials that do not necessarily need to have insulating properties.

60. Localized heating system according to claim 25, wherein the at least one heating system (7) increases the temperature of the withdrawn water flow, in at least about 1°C, or at least about 3°C.