Claims

1. An apparatus for treating water for rearing aquatic beings, wherein the water is held in a holding space and wherein the apparatus comprises:

a sensing element arranged within the holding space and configured to determine an Oxidation-Reduction Potential (ORP) of the water in the holding space;

a mixing unit configured to receive water from the holding space, oxygen and ozone, and further configured to facilitate mixture of the water with the oxygen and the ozone; and

a control unit configured to control provision of the ozone to the mixing unit based on the determined ORP;

wherein the mixing unit comprises a tube configured to allow water to flow through and a plurality of skewed plates arranged to impact on the water flowing through the tube.

2. An apparatus according to claim 1, wherein the control unit is configured to start providing ozone to the mixing unit if the ORP is equal to or below a lower limit and is further configured to stop said provision of the ozone to the mixing unit when the ORP reaches equal to or above an upper limit.

3. An apparatus according to claim 1 or 2, wherein the control unit further comprises:

an oxygen concentrator configured to generate the oxygen; and

an ozone generator configured to generate the ozone.

4. An apparatus according to claim 3, wherein the ozone generator is configured to generate the ozone using the oxygen generated by the oxygen concentrator.

5. An apparatus according to claim 3 or 4, wherein the control unit further comprises a perforated tray configured to hold the ozone generator.

6. An apparatus according to any one of the preceding claims, wherein the oxygen is continuously provided to the mixing unit.

7. An apparatus according to any one of the preceding claims, wherein the mixing unit comprises a plurality of oxidizing columns configured to simultaneously receive water from the holding space and further configured to facilitate the mixture of the received water with the oxygen and the ozone.

8. An apparatus according to claim 7, wherein the mixing unit comprises two oxidizing columns.

9. An apparatus according to claim 1, wherein the plurality of skewed plates are arranged to form a vertical spiral structure along the center of the tube.

10. An apparatus according to any one of the preceding claims, wherein the water is urged through the mixing unit in an urging direction and wherein the apparatus further comprises non-return valves configured to prevent flow of the water opposite to the urging direction.

11. An apparatus according to any one of the preceding claims, further comprising a casing formed of stainless steel.

12. An apparatus according to any one of the preceding claims, further comprising a communication unit configured to communicate wirelessly with a monitoring unit.

13. A method for treating water for rearing aquatic beings, wherein the water is held in a holding space and wherein the method comprises repeatedly performing the following steps:

urging the water from the holding space through a mixing unit;

providing the mixing unit with oxygen for mixing with the water;

determining an Oxidation-Reduction Potential (ORP) of the water in the holding space using a sensing element immersed in the water in the holding space; and

controlling provision of ozone to the mixing unit for mixing with the water, wherein the controlling is based on the determined ORP and is performed using a control unit;

wherein the mixing unit comprises a tube configured to allow water to flow through and a plurality of skewed plates, and the method further comprises impacting the water on the plurality of skewed plates as the water is flowing through the tube.

14. A method according to claim 13, wherein using the control unit comprises configuring the control unit to start providing ozone to the mixing unit if the ORP is below or equal to a lower limit and to stop said provision of the ozone to the mixing unit when the ORP reaches above or equal to an upper limit.

15. A method according to claim 14, further comprising:

setting a set-point for the ORP of the water in the holding space; and

calculating the lower limit and the upper limit based on the set-point using the control unit.