

Title (en)

METHOD AND DEVICE FOR INCREASING OXYGEN CONTENT OF HYPOLIMNION AND FOR REMOVING HARMFUL GASES IN HYPOLIMNION

Title (de)

VERFAHREN UND VORRICHTUNG ZUR ERHÖHUNG DES SAUERSTOFFGEGHALTS VON HYPOLIMNION UND ZUR ENTFERNUNG VON SCHÄDLICHEN GASEN IM HYPOLIMNION

Title (fr)

PROCEDE ET DISPOSITIF PERMETTANT D'AUGMENTER LA TENEUR EN OXYGENE DE L'HYPOLIMNION ET D'ELIMINER LES GAZ NOCIFS DE L'HYPOLIMNION

Publication

**EP 1594808 A1 20051116 (EN)**

Application

**EP 04704248 A 20040122**

Priority

- FI 2004000033 W 20040122
- FI 20030105 A 20030123

Abstract (en)

[origin: WO2004065312A1] The present invention relates to a method for increasing oxygen content of hypolimnion (1; 20) and for removing harmful gases in hypolimnion, in which method the hypolimnetic water is pumped with a pumping device (3; 22) through a riser tube (2; 21) reaching from the hypolimnion up near the surface to an upper basin (9) on the water surface, where the hypolimnetic water is aerated and harmful gases are removed, and from which upper basin (9) the oxygenated water is transferred through a downcomer (11) back to the hypolimnion. The present invention also relates to a device for increasing the oxygen content of the hypolimnion (1; 20) and for removing harmful gases in the hypolimnion, which device comprises an upper basin (9), a riser tube (2; 21) reaching from the hypolimnion up near the water surface, a pumping device (3; 22) for pumping the hypolimnetic water in a riser tube and a downcomer (11) conducted back from the upper basin to the hypolimnion for conducting the oxygenated hypolimnetic water back to the hypolimnion. Characteristic to the method in accordance with the invention is the fact, that the hypolimnetic water (1; 20) is conducted through a riser tube (2; 21) to an accelerating device (4; 25), where the flow velocity of the hypolimnetic water is increased and that the hypolimnetic water (1; 20) is conducted to a basic guide (5; 24) located at least partly over the surface of the water, by means of which the hypolimnetic water is directed to a distance above the water surface and back towards the water surface at suitable velocity and at a suitable angle of attack. Characteristic to the device in accordance with the invention is the fact that the device comprises an accelerating device (4; 25) for increasing the flow velocity of the hypolimnetic water conducted through the riser tube (2; 21) and a basic guide (5; 24) reaching at least partly above the water level for directing the hypolimnetic water (1; 20) coming through the riser tube a distance above the water level and back towards the water surface at suitable velocity and at a suitable angle of attack.

IPC 1-7

**C02F 7/00**

IPC 8 full level

**B01F 3/04** (2006.01); **B01F 5/02** (2006.01); **C02F 7/00** (2006.01)

CPC (source: EP)

**B01F 23/23421** (2022.01); **B01F 25/20** (2022.01); **C02F 7/00** (2013.01); **Y02W 10/10** (2015.05)

Citation (search report)

See references of WO 2004065312A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)

**WO 2004065312 A1 20040805**; EP 1594808 A1 20051116; FI 20030105 A0 20030123

DOCDB simple family (application)

**FI 2004000033 W 20040122**; EP 04704248 A 20040122; FI 20030105 A 20030123