

## Additional file 2. Articles not used in the review

### A. Articles included at abstract screening but not available in full text

- (1996) Phosphorus immobilization by chemical amendments in a constructed wetland.
- (1997) A biogeochemical characterization of reattachment bars of the Colorado River, Grand Canyon National Park, Arizona.
- (1997) Assessment of constructed subsurface-flow wetland design for removal of nitrate.
- (1997) Nitrate removal capacity of constructed wetlands.
- (1998) Retention of phosphorus and suspended solids in detention basins (created wetlands) in Northeast Wisconsin.
- (1999) Enhanced nitrification in constructed wetlands using ion-exchange and biological regeneration.
- (2000) A custom-designed experimental constructed wetland for removal of targeted pollutants during tertiary treatment of wastewater effluent.
- (2000) Evaluation and optimization of nitrogen removal in a stormwater treatment system.
- (2001) Phosphorus and sediment fate within a wetland-reservoir subirrigation system.
- (2002) Assessing the role of geology for nitrate fate and transport in groundwater beneath riparian buffers.
- (2002) Phosphorus retention and fractionation in masonry sand and light weight expanded shale used as substrate in a subsurface flow wetland.
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## Additional file 2

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**B. Excluded articles at full text screening**

Reason for exclusion is indicated for each reference. While only one reason is given there may be additional reasons to exclude a certain article. The following exclusion categories have been applied:

|                 |  |
|-----------------|--|
| <b>&lt;1 yr</b> | Study did not last for at least 1 year, covering all seasons.  |
| <b>Abs</b>      | Abstract only.   |
| <b>Clim</b>     | Not conducted in a boreal, temperate or subtropical region.  |
| <b>Int</b>      | Conducted at lab scale (wetland area <1 m <sup>2</sup> ) or in controlled climate, or not defined as wetland.                              |
| <b>Out</b>      | Removal rate or efficiency of TN or TP is not reported or possible to be calculated.   |
| <b>Per</b>      | Results reported for period of study. Annual values cannot be calculated.  |
| <b>Proc</b>     | Study provides results for a specific process only, such as denitrification or uptake, and not a measure of the total removal rate.        |
| <b>Sec</b>      | Review article with no primary data.   |
| <b>Subj</b>     | Not secondary or tertiary treated domestic wastewater, urban storm water, stream/river water, aquaculture effluent or agricultural runoff. |

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- Zhang X L; Zhang S, He F, Cheng S P; Liang W, Wu Z B; (2007) Differentiate performance of eight filter media in vertical flow constructed wetland: Removal of organic matter, nitrogen and phosphorus. *Fresenius Environmental Bulletin*. 16: 1468-1473. (<1 yr)
- Zhao F L; Xi S, Yang X E; Yang W D; Li J J; Gu B H; He Z L; (2012) Purifying eutrophic river waters with integrated floating island systems. *Ecological Engineering*. 40: 53-60. (Out)
- Zhao J, Lang X M; Chao L (2012) The Pilot-scale Study of Constructed Intensified Biological Bed on the Purification of Northern Transboundary Polluted River Water. In: Pan W, Ren J X; Li Y G; *Renewable and Sustainable Energy*, Pts 1-7. Stafa-Zurich: Trans Tech Publications Ltd, pages 2727-2734. (<1 yr)
- Zhou S, Hosomi M (2008) Nitrogen transformations and balance in a constructed wetland for nutrient-polluted river water treatment using forage rice in Japan. *Ecological Engineering*. 32: 147-155. (<1 yr)
- Zhu J G; Hu W P; Hu L M; Deng J C; Li Q Q; Gao F (2012) Variation in the Efficiency of Nutrient Removal in a Pilot-Scale Natural Wetland. *Wetlands*. 32: 311-319. (Out)
- Zurita F, De Anda , J , Belmont M A; (2009) Treatment of domestic wastewater and production of commercial flowers in vertical and horizontal subsurface-flow constructed wetlands. *Ecological Engineering*. 35: 861-869. (Subj)

## C. Articles containing data published elsewhere

### Redundant study

Andersson J L; Bastviken S Kallner; Tonderski K S; (2005) Free water surface wetlands for wastewater treatment in Sweden: nitrogen and phosphorus removal. *Water Science & Technology*. 51: 39-46.

Verhoeven J, Toet S, Schreijer M, Kampf R (1997) The use of constructed wetlands to upgrade treated sewage effluents before discharge to natural surface water in Texel Island, The Netherlands -- pilot study. *Water Science & Technology*. 35: 231.

Moustafa M Z; Fontaine T D; Guardo M, James R T; (1998) The response of a freshwater wetland to long-term 'low level' nutrients loads: Nutrients and water budget. *Hydrobiologia*. 364: 41-53.

Abtew W, Bechtel T (2001) Hydrologic Performance of a Large-Scale Constructed Wetland: The Everglades Nutrient Removal Project. , .

Dunne E J; Coveney M F; Marzolf E R; Hoge V R; Conrow R, Naleway R, Lowe E F; Battoe L E; (2012) Corrigendum to "Efficacy of a large-scale constructed wetland to remove phosphorus and suspended solids from Lake Apopka, Florida" [*Ecol. Eng.* 42 (2012) 90-100] (DOI:10.1016/j.ecoleng.2012.01.019). *Ecological Engineering*. : .

Coveney M F; Lowe E F; Battoe L E; (2001) Performance of a recirculating wetland filter designed to remove particulate phosphorus for restoration of Lake Apopka (Florida, USA). *Water Science and Technology*. 44: 131-136.

Gill L W; O'Lunaigh N, Johnston P M; (2011) On-site wastewater treatment using subsurface flow constructed wetlands in Ireland. *Journal of Environmental Science and Health Part a-Toxic/Hazardous Substances & Environmental Engineering*. 46: 723-728.

Moustafa M Z; (1999) Nutrient retention dynamics of the Everglades Nutrient Removal Project. *Wetlands*. 19: 689-704.

Moustafa M Z; White J R; Coghlan C C; Reddy K R; (2011) Influence of hydropattern and vegetation type on phosphorus dynamics in flow-through wetland treatment systems. *Ecological Engineering*. 37: 1369-1378.

Nairn R W; Mitsch W J; (2000) Phosphorus removal in created wetland ponds receiving river overflow. *Ecological Engineering*. 14: 107-126.

Sakadevan K, Bavor H J; (1999) Nutrient removal mechanisms in constructed wetlands and sustainable water management. Leiden: A a Balkema Publishers.

### Comment

Data published in Flyckt L. (2010) Treatment results, operational experiences and cost efficiency in constructed wetlands for waste water treatment in Sweden. Masters thesis, Linköping University. In Swedish.

This is the same paper as Schreijer M, Kampf R, Toet S, Verhoeven J (1997) The use of constructed wetlands to upgrade treated sewage effluents before discharge to natural surface water in Texel Island, The Netherlands - Pilot study. *Water Science and Technology*. 35: 231-237. (ID 8799880)

This is essentially the same as Moustafa M Z; Chimney M J; Fontaine T D; Shih G, Davis S (1996) The response of a freshwater wetland to long-term "low level" nutrient loads - Marsh efficiency. *Ecological Engineering*. 7: 15-33. (ID 8799429)

Overlaps with Moustafa M Z; Havens K E; (2001) Identification of an optimal sampling strategy for a constructed wetland. *Journal of the American Water Resources Association*. 37: 1015-1028. (ID 8799430). Not possible to calculate loads. See also Everglades Consolidated Report.

Corrigendum. Data in Dunne E J; Coveney M F; Marzolf E R; Hoge V R; Conrow R, Naleway R, Lowe E F; Battoe L E; (2012) Efficacy of a large-scale constructed wetland to remove phosphorus and suspended solids from Lake Apopka, Florida. *Ecological Engineering*. 42: 90-100.

Data published in Coveney M F; Stites D L; Lowe E F; Battoe L E; Conrow R (2002) Nutrient removal from eutrophic lake water by wetland filtration. *Ecological Engineering*. 19: 141-159.

Results are also published in O'Lunaigh N D; Goodhue R, Gill L W; (2010) Nutrient removal from on-site domestic wastewater in horizontal subsurface flow reed beds in Ireland. *Ecological Engineering*. 36: 1266-1276. (ID 8799538) Should be excluded due to redundancy. No info on location or time period of study. They say 3 years in the abstract but it is not clear whether the study covers 3 complete years. Fig. 2 shows data from May -06 to June -08 which is only two years, and in the text (p. 726) they talk about 2.5 years of monitoring.

Results also published in Moustafa M Z; Havens K E; (2001) Identification of an optimal sampling strategy for a constructed wetland. *Journal of the American Water Resources Association*. 37: 1015-1028. (ID 8799430). Should be Exluded due to redundancy. See also Abtew and Bechtel 2001 and Everglades consolidated report.

Overlaps with White J R; Reddy K R; Majer-Newman J (2006) Hydrologic and vegetation effects on water column phosphorus in wetland mesocosms. *Soil Science Society of America Journal*. 70: 1242-1251. (ID 8800397) Mass loadings not calculated. No water budget, but hydraulic loading constant (except for drawdown in some mesocosms) However, HRD = 15 days, thus evapotranspiration substantial? Should probably be excluded since outflow volumes are unknown, as well as water additions due to rain

Results also published in Nairn Robert W; (1996) Biogeochemistry of newly created riparian wetlands; evaluation of water quality changes and soil development. Dissertation for the Degree of Doctor of Philosophy: The Ohio State University (ID 8795723). Should be Exluded due to redundancy.

Same as Sakadevan K, Bavor H J; (1999) Nutrient removal mechanisms in constructed wetlands and sustainable water management. *Water Science and Technology*. 40: 121-128.

## Additional file 2

### Redundant study

Tanner C C; Nguyen M L; Sukias J P. S; (2005) Nutrient removal by a constructed wetland treating subsurface drainage from grazed dairy pasture. *Agriculture Ecosystems & Environment*. 105: 145-162.

Tanner C C; Nguyen M L; Sulkias J P. S; (2005) Constructed wetland attenuation of nitrogen exported in subsurface drainage from irrigated and rain-fed dairy pastures. *Water Science and Technology*. 51: 55-61.

Tuncsiper B (2007) Removal of nutrient and bacteria in pilot-scale constructed wetlands. *Journal of Environmental Science and Health Part a-Toxic/Hazardous Substances & Environmental Engineering*. 42: 1117-1124.

Tuncsiper B, Ayaz S C; Akca L (2006) Modelling and evaluation of nitrogen removal performance in subsurface flow and free water surface constructed wetlands. *Water Science and Technology*. 53: 111-120.

### Comment

Results also published in Tanner C C; Sukias J P. S; (2011) Multiyear Nutrient Removal Performance of Three Constructed Wetlands Intercepting Tile Drain Flows from Grazed Pastures. *Journal of Environmental Quality*. 40: 620-633. Excluded due to redundancy

Results also published in Tanner C C; Sukias J P. S; (2011) Multiyear Nutrient Removal Performance of Three Constructed Wetlands Intercepting Tile Drain Flows from Grazed Pastures. *Journal of Environmental Quality*. 40: 620-633. Excluded due to redundancy

Same system as already included. This system is less clear with data presentation. It mostly gives multiple regression. Data are difficult to extract

Same wetland and data set as Tuncsiper B, Ayaz S C; Akca L, Samsunlu A (2005) Nitrogen management in reservoir catchments through constructed wetland systems. *Water Science and Technology*. 51: 175-181. (ID8800216). This paper deals with modeling.