1. Accumulation of organic solids in gravel-bed constructed wetlands.
   Tanner, C. C.; Sukias, J. P.
   Descriptors: wetlands-; schoenoplectus-; gravel-; waste-water-treatment; dairy-wastes; dairy-effluent; waste-water; deposition-; organic-matter; pollutants-; hydrology-; new-zealand; suspended-solids; schoenoplectus-validus; artificial-wetlands
2. Actual experiences with the use of reed bed systems for wastewater treatment in single households. 
Perfler, R.; Haberl, R.
Descriptors: waste-water-treatment; rural-areas; wetlands-; pollution-control; phragmites-australis; filter-beds; biological-treatment; chemical-oxygen-demand; biochemical-oxygen-demand; ammonium-nitrogen; nitrogen-; phosphorus-; costs-; nutrient-removal

3. Agricultural best management practices and surface water improvement and management.
Anderson, D. L.; Flaig, E. G.
Descriptors: water-pollution; phosphorus-; runoff-; runoff-water; drainage-; drainage-water; pollution-control; agricultural-land; farmland-; wetlands-; lakes-; national-parks; watershed-management; florida-; lake-okeechobee; everglades-national-park; nonpoint-source-pollution

4. Ammonium and nitrate removal in vegetated and unvegetated gravel bed microcosm wetlands.
Zhu, T.; Sikora, F. J.
Descriptors: wetlands-; gravel-; ammonium-; ammonium-nitrogen; nitrate-; nitrate-nitrogen; removal-; denitrification-; nitrification-; phalaris- arundinacea; phragmites-australis; scirpus-; typha-latifolia; nutrient-uptake; roots-; immobilization-; biomass-; microorganisms-; redox-potential; alabama-; scirpus-atrovires; constructed-wetlands; artificial-wetlands

5. Ammonium removal in constructed wetlands with recirculating subsurface flow: removal rates and mechanisms.
Sikora, F. J.; Tong, Z.; Behrends, L. L.; Steinberg, S. L.; Coonrod, H. S.
6. Artificial wetlands for the treatment of mill effluent.
Schumann, G. T.

Meeting held on June 10-12, 1991, Durban and Mount Edgecombe, South Africa.

Streckfuss, T. H.


Conley, L. M.; Dick, R. I.; Lion, L. W.

Includes references.

Gren, I. M.


Cover title.
10. Benefits to downstream flood attenuation and water quality as a result of constructed wetlands in agricultural landscapes.
De Laney, T. A.

Special issue on wetlands.
Descriptors: agricultural-land; wetlands-; construction-; geographical-distribution; flood-control; pollution-control; agricultural-chemicals; sediment-; water-quality
NAL Call No.: 56.8-J822

Includes vita and abstract.
Descriptors: Wetlands-; Water-reuse; Water-Purification
NAL Call No.: KyU Thesis-1992-Mitchell

12. Biogeochemical characteristics of wetlands developed after strip mining for coal.
Sistani, K. R.; Mays, D. A.; Taylor, R. W.

Includes references.
Descriptors: wetlands-; disturbed-soils; mined-land; reclamation-; biogeochemistry-; characterization-; chemical-composition; wetland-soils; comparisons-; alabama-; constructed-wetlands-versus-natural-wetlands

Abstract: Since the costly practice of toxic spoil burial and topsoil replacement during surface mine reclamation are mandated by law, it has become feasible to consider creation of constructed wetlands for wildlife habitat as an alternative mined land reclamation practice on active or abandoned mine sites. This is also a novel approach for mitigation of lost natural wetland in the past. Implementation of this concept will require proper baseline information from the biogeochemical properties of constructed wetlands developed on surface mined sites. Baseline data were collected from two wetlands developed on strip mined sites in Alabama. We took samples from each wetland in April and September 1992. Since the naturalization of these wetlands with regard to the spatial variabilities within each wetland were the main objective of this work, a natural wetland developed on undisturbed soil was sampled at the same time so that it could be used as a reference to wetlands developed on disturbed soils. The natural wetland was
dominated by cattail (Typha latifolia) and smartweed (Polygonum sp.) while the dominant emergent vegetation of the stripmined site wetlands was bulrush (Scirpus sp.) and cattail. The pH of the mineral and organic substrate in the natural wetland ranged from 7.7 to 7.8 while in the mined-site wetlands, pH ranged from 6.7 to 7.4. Dry soil adjacent to mined site wetlands had pHs of 4.1 and 5.0, compared to 6.5 for dry soil adjacent to the natural wetland. Higher levels of extractable calcium (Ca), magnesium (Mg), potassium (K), sodium (Na), aluminum (Al), iron (Fe), manganese (Mn), and zinc (Zn) were measured in April than September for all wetlands. Metal concentrations did not show any consistent trend. Coal will gain biogeochemical characteristics similar to those of natural wetlands regardless of the initial chemical characteristics of the mined spoil materials. However, more studies with regard to the direct comparison of constructed versus natural wetlands at different locations is warranted.

13. Busch wildlife area constructed wetland.
Schneider, J. H.

Descriptors: water-quality; wetlands-
NAL Call No.: S590.C63

White, G. C.; Smalls, I. C.; Bek, P. A.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands—; nutrients—; phosphorus—; removal—; nutrient-uptake; aquatic-plants; design—; new-south-wales; constructure-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7

15. Case studies of wetland filtration of mine waste water in constructed and naturally occurring systems in Northern Australia.
Noller, B. N.; Woods, P. H.; Ross, B. J.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands—; filtration—; waste-water; drainage-water; mined-land; mine-spoil; metals—; metal-ions; removal—; northern-territory; constructed-wetlands;
artificial-wetlands
NAL Call No.: TD420.A1P7
******************************************************************************

16. Challenges for the development of advanced constructed wetlands technology.
Bavor, H. J.; Roser, D. J.; Adcock, P. W.

Descriptors: wetlands-; waste-water-treatment; structural-design; nutrients-; removal-; expert-systems; decision-making; databases-; sewage-effluent; waste-water; aquatic-plants; cycling-; aquatic-organisms; microorganisms-; microbial-degradation; artificial-wetlands
NAL Call No.: TD420.A1P7
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17. Cleopatra's bathwater: an informal introduction to the art and science of bioremediation.
Ausubel, K.

Descriptors: biotechnology-; water-resources; wetlands-; waste-water-treatment; marshes-; arizona-
NAL Call No.: S612.A753
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18. Cold-climate constructed wetlands.
Maehlum, T.; Jenssen, P. D.; Warner, W. S.

Descriptors: wetlands-; waste-treatment; waste-water-treatment; nutrients-; removal-; phosphorus-; nitrogen-; chemical-oxygen-demand; biochemical-oxygen-demand; water-flow; horizontal-flow; organic-matter; norway-; artificial-wetlands; subsurface-flow
NAL Call No.: TD420.A1P7
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19. The combination of a flood-retarding basin and a wetland to manage the impact of urban runoff.
Breen, P. F.; Mag, V.; Seymour, B. S.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands-; flood-control; runoff-; runoff-water; urban-areas; aquatic-plants; waste-water-treatment; biological-treatment; victoria-; artificial-wetlands; constructed-wetlands
NAL Call No.: TD420.A1P7
Duncan, C. P.; Groffman, P. M.

Includes references.
Descriptors: wetlands--; pollution-control; water-quality;
microbial-activities; biomass-production;
soil-organic-matter; soil-ph; soil-water; denitrification--;
enzyme-activity; mineralization--; nitrification--;
massachusetts--; rhode-island
Abstract: Microbial biomass C, soil respiration,
denitrification enzyme activity (DEA), and potential net N
mineralization and nitrification were compared in two
constructed and three natural wetlands in Massachusetts and
Rhode Island. The constructed wetlands studied had marsh and
wet meadow vegetation and received storm water discharge
directly from a large shopping mall and its associated
parking lots. The natural sites encompassed three soil
drainage classes (moderately well drained, poorly drained,
and very poorly drained) across an upland to wetland
transition zone with red maple (Acer rubrum L.) swamps and
mixed oak (Quercus sp.) forests in the transition zone. Our
objective was to determine if microbial biomass and activity
were similar in the constructed wetlands and the most common
type of natural wetland in our area. Microbial biomass C,
DEA, and potential net N mineralization and nitrification
were similar among the constructed and natural wetland sites.
In all cases, levels of these parameters in the constructed
wetlands fell within the range of variability observed in the
natural wetlands. Denitrification enzyme activity was higher
(p < 0.05) in the constructed wetlands than in the moderately
well drained soils at the natural sites. Soil respiration
was generally lower (p < 0.05) in the constructed wetlands
than in the natural wetlands. The results suggest that the
constructed wetlands have a significant and active microbial
community that facilitates nutrient cycling and water quality
maintenance functions similar to natural wetlands. The
successful development of the microbial community in these
wetlands was likely due to the use of organic substrates.
NAL Call No.: QH540.J6

Green, M. B.; Upton, J.

In the series analytic: Wetland systems for water pollution
Descriptors: wetlands--; waste-water-treatment; runoff-water;
sewage--; sewage-effluent; phragmites-australis; nutrients--;
pollutants--; removal--; nitrogen--; biochemical-oxygen-demand;
ammonium-nitrogen; suspended-solids; constructed-wetlands;
storm-water-treatment
22. Constructed "source" wetland concepts applied to urban landscapes.
Hopkins, B.; Argue, J. R.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands--; water-management; runoff--; urban-areas; groundwater-recharge; aquifers--; south-australia; constructed-wetlands; artificial-wetlands; urban-runoff; stormwater-

23. Constructed wetland design--the first generation.
Reed, S. C.; Brown, D. S.

Includes references.
Descriptors: refuse--; industrial-wastes;
waste-water-treatment; wetlands--; construction--; design--
environmental-protection; federal-government; public-agencies; inventories--; performance-appraisals; usa--;
environmental-protection-agency; constructed-wetland-systems;
organic-loading-on-wetlands

24. Constructed wetland for treating swine lagoon effluent.
Payne, V. W. E.; McCaskey, T. A.; Eason, J. T.

Descriptors: pigs--; lagoons--; effluents--;
waste-water-treatment; wetlands--; construction-

Higgins, M. J. 1.

Orono, Me., 1992. vi, 113 leaves : ill..
Includes vita.
Descriptors: Agricultural-pollution;
Watershed-management-Environmental-aspects-Maine

26. Constructed wetland site design and installation.
Ulmer, R.; Cathcart, T.; Strong, L.; Pote, J.; Davis, S.

Paper presented at the "1992 International Winter Meeting sponsored by the American Society of Agricultural Engineers,"
Descriptors: dairy-effluent; waste-water-treatment; wetlands-; construction-; lagoons-
NAL Call No.: 290.9-Am32P
********************************************************************

27. Constructed wetland systems for water pollution control in North China.
Li, X. F.; Jiang, C. C.

Descriptors: wetlands-; waste-water-treatment; sewage-; sewage-effluent; water-flow; pollution-control; water-pollution; lagoons-; ponds-; phragmites- australis; xinjiang-; liaoning-; beijing-; yunnan-; shandong-; artificial-wetlands; surface-flow
NAL Call No.: TD420.A1P7
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Reaves, R. P.; DuBowy, P. J.; Jones, D. D.; Sutton, A. L.

Includes references.
Descriptors: wetlands-; aquatic-plants; waste-water-treatment; waste-treatment; dairy-effluent; piggery-effluent; lagoons-; indiana-; swine-lagoon-effluent
NAL Call No.: TD365.C54-1995
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Hunt, P. G.; Humenik, F. J.; Szogi, A. A.; Rice, J. M.; Stone, K. C.; Cutts, T. T.; Edwards, J. P.

Descriptors: wetlands-; waste-water-treatment; animal-wastes; glycine-max; oryza-sativa; nitrogen-; redox-potential; redox-reactions
NAL Call No.: 290.9-Am32P
********************************************************************
Rieck, A.; Langston, J.; VanDevender, K.
Includes references.
Descriptors: animal-wastes; waste-treatment; wetlands-; regulations-; state-government; arkansas-
NAL Call No.: S37.F72
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31. Constructed wetlands clean up: they could be an inexpensive, low-tech cure for farm pollution headaches.
Becker, H.
Descriptors: dairy-farming; waste-water; water-management; wetlands-
NAL Call No.: 1.98-Ag84
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32. Constructed wetlands for acid drainage control in the Tennessee Valley.
Brodie, G. A.
[Chattanooga, Tenn.? : Tennessee Valley Authority?, 1987?] 1 v. (unpaged).
Caption title.
Descriptors: Constructed-wetlands
NAL Call No.: TD756.5.B76-1987
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Dubowy, P. J. P. J. 1.; Reaves, R. P. R. P. 1.
West Lafayette, In. : Department of Forestry and Natural Resources, Purdue University, c1994. vi, 188 p. : ill.
Includes bibliographical references.
Descriptors: Animal-waste-Management-Congresses; Constructed-wetlands-Congresses
NAL Call No.: TD930.C644--1994
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Humenik, F.; Zublena, J.; Barker, J.
In subseries: Water Quality & Waste Management.
Descriptors: wetlands--; construction--; design--; waste-water-treatment; water-quality; simulation--; north-carolina
NAL Call No.: S544.3.N6N62
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Davis, S. H.; Ulmer, R.; Strong, L.; Cathcart, T.; Pote, J.; Brock, W.
Descriptors: dairy-effluent; waste-water-treatment; wetlands-; construction-; nitrification-; biochemical-oxygen-demand; dissolved-oxygen; mississippi-
NAL Call No.: 290.9-Am32P
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36. Constructed wetlands for industrial wastewater.
Gillette, B.
Biocycle v.35, p.80, 82-83. (1994).
Descriptors: waste-water; waste-water-treatment; wetlands-; kentucky-
NAL Call No.: 57.8-C734
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Zimmerman, T.; Lefever, J. L.; Warns, M.
Descriptors: waste-water-treatment; wetlands-
NAL Call No.: 290.9-Am32P
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38. Constructed wetlands for river water quality improvement.
Kadlec, R. H.; Hey, D. L.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands-; water-quality; sediment-; phosphorus-; nitrogen-; removal-; atrazine-; nutrients-; -; hydrology-; water-pollution; watersheds-; illinois-; non-point-source-pollution; artificial-wetlands
NAL Call No.: TD420.A1P7
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United States. Environmental Protection Agency.
West Lafayette, IN : The Center, [1993?] 1 sheet.
Caption title.
Descriptors: Wetland-ecology; Agricultural-pollution
NAL Call No.: QH541.5.M3C66--1993
Girts, M. A.

Descriptors: Constructed-wetlands
NAL Call No.: TD756.5.G57-1986

41. Constructed wetlands for wastewater treatment and wildlife habitat: 17 case studies.
United States. Environmental Protection Agency.

[Washington, DC]: U.S. Environmental Protection Agency:
Cover title.
Descriptors: Constructed-wetlands-United-States-Case-studies;
Sewage-Purification-Biological-treatment-United-States-Case-studies;
Habitat-Ecology-Modification-United-States-Case-studies
NAL Call No.: TD756.5.C65--1993

42. Constructed wetlands for wastewater treatment in the Czech Republic--State of the art.
Vymazal, J.

Descriptors: wetlands-; waste-water-treatment; sewage-;
wastewater-effluent; phragmites-australis; phalaris-arundinacea;
glyceria-maxima; biochemical-oxygen-demand;
chemical-oxygen-demand; pollutants-; water-flow;
czechoslovakia-; reed-bed-system; artificial-wetlands;
suspended-solids; susurface-flow
NAL Call No.: TD420.A1P7

43. Constructed wetlands for water quality improvement.
Moshiri, G. A.

Papers presented at the Pensacola conference.
Descriptors: Constructed-wetlands-Congresses;
Water-quality-management-Congresses;
Constructed-wetlands-Case-studies-Congresses
NAL Call No.: TD756.5.M67--1993

44. Constructed wetlands handle waste.
Taylor, S.
45. Constructed wetlands in Europe.
Haberl, R.; Perfler, R.; Mayer, H.
Descriptors: wetlands-; waste-water-treatment; water-flow; horizontal-flow; dewatering-; sewage-sludge; nutrients-; removal-; ammonium-nitrogen; nitrogen-; phosphorus-; europe-; artificial-wetlands; subsurface-flow
NAL Call No.: TD420.A1P7
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46. Constructed wetlands in water pollution control: fundamentals to their understanding.
Wood, A.
Descriptors: wetlands-; waste-water-treatment; pollution-control; aquatic-plants; nutrient-uptake; nutrients-; removal-; aquatic-organisms; microorganisms-; microbial-degradation; cycling-; surface-flow-wetlands; subsurface-flow-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7
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47. Constructed wetlands successfully treat swine wastewater.
Descriptors: pigs-; waste-water; waste-water-treatment; wetlands-; aquatic-plants; ammonia-; nitrogen-content; alabama-
NAL Call No.: 100-AL1H
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48. Constructed wetlands to control nonpoint source pollution.
Wengrzyniek, R. J.
Copies of USDA patents are available for a fee from the Commissioner of Patents and Trademarks, U.S. Patents and Trademarks Office, Washington, D.C. 20231.
Descriptors: soil-pollution; pollution-control; patents-; usda-; wetlands-; ponds-; vegetation-; detoxification-; usa-;
Abstract: Abstract: The construct containing in hydraulic order a sediment basin, level-lip spreader, grassy filter, wetland, and deep pond can be used to remove pollutants from nonpoint source runoff. Wetlands are planted with vegetation that encourages growth of aerobic and anaerobic bacteria which are helpful in removing and detoxifying contaminants.

NAL Call No.: aT223.V4A4

49. Coupling wetland treatment to land treatment: an innovative method for nitrogen stripping.
Cooper, A. B.

Water-sci-technol v.29, p.141-149. (1994).
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; wetlands-; typha-orientalis; carex-; azolla-filiculoides; nitrate-; removal-; nutrient-uptake; denitrification-; new- zealand
NAL Call No.: TD420.A1P7

50. Created and natural wetlands for controlling nonpoint source pollution.

"U.S. EPA, Office of Research and Development, and Office of Wetlands, Oceans, and Watersheds.".
Descriptors: Water-quality-management-United-States; Water-Pollution-United-States; Wetland-conservation-United-States; Constructed-wetlands-United-States
NAL Call No.: TD223.C73-1993

51. Denitrification in constructed wastewater wetlands receiving high concentrations of nitrate.
Van Oostrom, A. J.; Russel, J. M.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; wetlands-; glyceria-maxima; meatworks-effluent; denitrification-; nitrate-; nitrogen-; removal-; nutrient-uptake; artificial-wetlands
NAL Call No.: TD420.A1P7

52. Design and construction of a wetland to treat milkhouse wastewater.
Holmes, B. J.; Massie, L. R.; Bubenzer, G. D.; Hines, G.
53. Design and performance of the Champion pilot-constructed wetland treatment system.
Knight, R. L.; Hilleke, J.; Grayson, S.
Includes references.
Descriptors: pulp-and-paper-industry; kraft-mill-effluent; waste-water-treatment; water-quality; biochemical-oxygen-demand; wetlands--; florida-
NAL Call No.: 302.8-T162
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54. Design criteria and practice for constructed wetlands.
Crites, R. W.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; wetlands--; design--; water-flow; hydrology--; biological-treatment; aquatic-plants; artificial-wetlands
NAL Call No.: TD420.A1P7
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55. Design models for nutrient removal in constructed wetlands.
Kadlec, R. H.
Includes references.
Descriptors: waste-water-treatment; wetlands--; design--; nutrients--; nitrogen--; phosphorus--; removal--; water-pollution; pollution-control; multivariate- analysis; databases-
NAL Call No.: TD930.A55-1995
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56. Design of constructed wetlands for dairy waste water treatment in Louisiana.
Descriptors: dairy-wastes; waste-water-treatment; water-flow; wetlands--; water-systems; design--; pollution-control;
57. Design of submerged flow wetlands for individual homes and small wastewater flows.
Sievers, D. M.; University of Missouri Columbia.
Agricultural Experiment Station.
Cover title.
Descriptors: Constructed-wetlands; Sewage-Purification; Septic-tanks; Typha--; Aquatic-weeds
NAL Call No.: TD930.A55-1995
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58. Designing constructed wetlands for nitrogen removal.
Hammer, D. A.; Knight, R. L.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; wetlands--; design--; nitrification--; denitrification--; nitrogen--; removal--; ammonium--; anaerobic-- conditions; aerobiosis--; aerobic-treatment; anaerobic-treatment; aquatic-plants; nutrient-uptake; artificial-wetlands
NAL Call No.: TD420.A1P7
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59. Developing artificial wetlands to benefit wildlife and livestock.
Olson, R.
Includes references.
Descriptors: wetlands--; habitat-selection; environmental-protection; wildlife-conservation; construction--; grazing--; wyoming-
NAL Call No.: 275.29-W99B
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60. Development of guidelines for and demonstration of efficient treatment of swine lagoon wastewater by constructed wetlands.
McCaskey, T. A.
Sustainable Agriculture Research and Education SARE research projects Southern Region. [1988-. 1995. 34 p.
SARE Project Number AS94-16. Record includes floppy disk.
Date of report December 1995.
Descriptors: pig-slurry; waste-water-treatment; nitrogen-content; ammonia--; nitrate--; nitrogen--
61. Diagenesis of organic matter in a wetland receiving hypereutrophic lake water. II. Role of inorganic electron acceptors in nutrient release.  
D'Angelo, E. M.; Reddy, K. R.  
Descriptors: organic-matter; sediment-; peat-soils; decomposition-; cycling-; oxygen-; nitrate-nitrogen; ammonium-nitrogen; sulfate-; water-pollution; water-quality; marshes-; pollution-control  
Abstract: Constructed marshes are currently being used as a low-cost alternative for treatment of nutrient-enriched waters. These marshes may function as net sinks for nutrients, especially for particulate organic forms of N and P. However, decomposition of organic matter and nutrient release may influence the ability of the marsh to function for this purpose. One of the main factors affecting decomposition is the availability of inorganic electron acceptors (e.g., O2, NO3(-), and SO4(2-)). The role of electron acceptor consumption on N and P regeneration and release was investigated using batch incubation experiments with recently deposited organic matter (floc sediment) and peat soils collected from the constructed marsh. In electron acceptor-amended soil cores, electron acceptor consumption proceeded rapidly in the order O2 > NO3(-) > SO4(2-). Mean oxygen reduction rate (OR) was 1.6 g O2 m-2 d-1 (2025 g O2 m-3 d-1), with corresponding values for NO3(-) and SO4(2-) of 0.23 g N m-2 d-1 (60 g N m-3 d-1) and 0.086 g S m-2 d-1 (5.4 g S m-3 d-1), respectively. If electron acceptor consumption was coupled to decomposition of organic matter in Hoc sediment with a C/N/P ratio of 190:14:1, aerobic catabolism accounted for 92% of NH4+, and soluble P regenerated in the soil, with anaerobic activity (NO3(-) and SO4(2-) reduction) accounting for the remaining 8%. In the constructed marsh receiving allochthonous inputs of labile organic matter, however, anaerobic decomposition was expected to be the dominant mechanism for nutrient regeneration. Under SO4(2-) reducing conditions, net rates of organic N and P mineralization were 3.3 to 14 mg N L-1 sediment d-1 and 0.5 to 0.6 mg P L-1, respectively, and were highly the water column by diffusion and advection (e.g., gas ebullition), thus impacting water quality.  
NAL Call No.: QH540.J6  
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62. Domestic wastewater treatment through constructed wetland in India.  
Juwarkar, A. S.; Oke, B.; Juwarkar, A.; Patnaik, S. M.
63. The economic and environmental feasibility of using constructed wetlands for treatment of municipal wastewater in small communities in Maine.

Hesketh, P. S. 1.

Orono, Me., 1990. viii, 256 leaves : ill..<br>Includes vita.
MeU Univ.-1990-H461

64. Effects of acidification on metal accumulation by aquatic plants and invertebrates. 1. Constructed wetlands.

Albers, P. H.; Camardese, M. B.

Descriptors: aquatic-plants; aquatic-insects; uptake-; aluminum-; cadmium-; calcium-; copper-; iron-; lead-; magnesium-; manganese-; nickel-; zinc-; acidification-; wetlands-; pollution-; ph-; adverse-effects; freshwater-biology; maryland-
NAL Call No.: QH545.A1E58

65. The efficiency of constructed wetland-pond systems in the reduction of sediment and nutrient discharges from agricultural watersheds.

Jolley, J. W. 1.

Orono, Me., 1990. ix, 180 leaves : ill., map.<br>Includes vita.<br>MeU Univ.-1990-J683

66. Efficient and low cost effluent treatment using an ash disposal dam.

Vermeulen, P. L. M.; Vawda, A. S.

Descriptors: roller-mills; sugar-industry; sugar-refineries; fly-ash; waste-water; waste-water-treatment; effluents-; wetlands-; biological-treatment; dams-; sugar-factory-waste; artificial-wetlands
Gray, K. R.; Biddlestone, A. J.
Includes references.
Descriptors: waste-water-treatment; wetlands-;
phragmites-australis; typha-latifolia; scirpus-lacustris;
biological-treatment; waste-water; microbial- degradation;
constructed-wetlands
NAL Call No.: TA166.T72
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68. Enhancement of nitrogen removal in subsurface flow
constructed wetlands employing a 2-stage configuration, an
unsaturated zone, and recirculation.
White, K. D.
In the series analytic: Wetland systems for water pollution
Descriptors: wetlands-; waste-water-treatment; nitrogen-;
removal-; denitrification-; nitrification-; water-flow;
waste-water; factory-effluents; food- industry; seafoods-;
biochemical-oxygen-demand; aeration-; hydraulics-;
ammonium-nitrogen; nitrate-; passive-aeration;
hydraulic-retention-time; artificial-wetlands;
seafood-industry
NAL Call No.: TD420.A1P7
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69. Establishing wetland plants in artificial systems.
Chambers, J. M.; McComb, A. J.
Water-sci-technol v.29, p.79-84. (1994).
In the series analytic: Wetlands systems in water pollution
Descriptors: waste-water-treatment; biological-treatment;
wetlands-; aquatic-plants; rhizomes-; transplanting-;
seed-germination; establishment-; western-australia;
constructed-wetlands; artificial-wetlands; macrophytes-
NAL Call No.: TD420.A1P7
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70. European design and operations guidelines for reed bed
treatment systems.
Cooper, P. F. P. F.; Water Research Centre (Great Britain).
Swindon : Water Research Centre, 1990. viii, 27, 10 p. (1
folded) : ill..
Descriptors: Constructed-wetlands; Water-Purification
NAL Call No.: TD756.5.E97--1990
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Batubara, D. S. 1.
Vita.
Descriptors: Constructed-wetlands; Factory-and-trade-waste-Environmental-aspects; Sugarcane-industry-Environmental-aspects
NAL Call No.: LU 378.76-L930-1992-batu

Cooper, C. M.; Testa, S. L.; Knight, S. S.; National Sedimentation Laboratory (U.S.).
"April 1993.".
Descriptors: Dairy-waste-Mississippi-Hernando; Sewage-; Waste-disposal-sites-Mississippi-Hernando
NAL Call No.: aTD899.D3C66--1993

73. An evaluation of pollutant removal from secondary treated sewage effluent using a constructed wetland system.
Thomas, P. R.; Glover, P.; Kalaroapan, T.
Descriptors: wetlands-; juncus-; schoenoplectus-; sewage-; waste-water-treatment; sewage-effluent; pollutants-; nutrients- removal; biochemical oxygen-demand; chemical-oxygen-demand; ammonium-; nitrate-; phosphorus-; victoria-; schoenoplectus-validus; suspended-solids; artificial-wetlands; juncus-ingens
NAL Call No.: TD420.A1P7

74. Experiences with two constructed wetlands for treating milking center waste water in a cold climate.
Holmes, B. J.; Doll, B. J.; Rock, C. A.; Bubenzer, G. D.; Kostinec, R.; Massie, L. R.
Descriptors: dairy-wastes; wetlands-; waste-water-treatment; water-quality; typha-latifolia; survival-; water-pollution; pollution-control; temperate- climate; maine-; wisconsin-
NAL Call No.: TD930.A55-1995

75. Factors affecting nitrogen removal in horizontal flow
reed beds.
Platzer, C.; Netter, R.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptor: sewage-effluent; waste-water-treatment; biological-treatment; wetlands--; nitrogen--; removal-;
nutrient-uptake; aquatic-plants; evapotranspiration-;
nitrification--; aquatic-plants; evapotranspiration-;
nitrification--; denitrification--; environmental-temperature;
austria--; germany--; constructed-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7
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76. A field-scale, natural gradient solute transport experiment in peat at a Newfoundland blanket bog.
Hoag, R. S.; Price, J. S.
Includes references.
Descriptor: wetlands--; bogs--; solutes--; contaminants--;
transport-processes; hydraulic-conductivity; rain-;
evaporation--; pollution-control; newfoundland-
Abstract: A field-scale, natural gradient solute transport experiment conducted at a Newfoundland blanket bog resulted in an asymmetrical plume owing to solute retardation in the dual-porosity matrix. An order of magnitude decrease in hydraulic conductivity 10-20 m downslope of the spill caused the transport rate to decrease and lateral dispersion to increase. Most transport occurred near the watertable and the transport rate increased as the watertable rose. Hydraulic conductivity between a depth of 0 and 0.2 m was 1.6 X 10(-2) m s-1, whereas at a depth of 0.5 m it was 5-6 orders of magnitude lower owing to greater compaction and humification of the peat with depth. At a depth of 0.4-0.45 m diffusion may have become the dominant transport mechanism. In spite of the retardation process, the solute front's rate of movement was relatively high, about 2.3 m day-1, owing to a combination of the high watertable during the study and a relatively steep hydraulic gradient of 0.055. Rain caused dilution and mixing of solute near the watertable. Evaporation did not have an appreciable effect on solute concentration, which is attributable to the high transport rate.
NAL Call No.: 292.8-J82
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77. Flow characteristics of planted soil filters.
Netter, R.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptor: waste-water-treatment; biological-treatment;
wetlands--; water-flow; measurement--; aquatic-plants;
tracers--; constructed-wetlands; artificial-wetlands
78. A four-year mass balance for a natural wetland system receiving domestic wastewater.
Hosomi, M.; Murakami, A.; Sudo, R.
Descriptors: wetlands-; waste-water-treatment; waste-water; water-quality; aquatic-plants; chemical-oxygen-demand; biochemical-oxygen-demand; nitrogen--; phosphorus--; removal--; organic-matter; honshu--; gray-water; domestic-waste-water; reeds--

"February 1991."
Descriptors: Wetlands-Bibliography; Urban-runoff-Bibliography; Water-Pollution-Bibliography; Water-quality-management-Bibliography

80. The function of a coastal wetland as an efficient remover of nutrients from sewage effluent: a case study.
Soukup, A.; Williams, R. J.; Cattell, F. C. R.; Krogh, M. H.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: sewage-effluent; waste-water-treatment; biological-treatment; wetlands--; ammonia--; nitrogen--; phosphorus--; removal--; nutrient-uptake; aquatic-plants; new-south-wales

81. Functions of macrophytes in constructed wetlands.
Brix, H.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; wetlands--; aquatic-plants; hydraulic-conductivity; nutrient-uptake; artificial-wetlands

Descriptors: Constructed-wetlands; Sewage-Purification
NAL Call No.: TD756.5.S74--1993

83. Glyceria maxima for wastewater nutrient removal and forage production. Sundblad, K.; Wittgren, H. B.

Descriptors: refuse-; waste-water-treatment; glyceria-maxima; fodder-crops; biomass-production; crop-yield; nutrient-uptake; crop-quality; lysimeters--; nutritive-value; sweden--; wetland-filter
NAL Call No.: TD930.A32

84. Gravel media filtration as a constructed wetland component for the reduction of suspended solids from maturation pond effluent. Sapkota, D. P.; Bavor, H. J.

Descriptors: waste-water-treatment; biological-treatment; wetlands--; gravel--; filtration--; artificial-wetlands
NAL Call No.: TD420.A1P7

85. Growth characteristics of three macrophyte species growing in a natural and constructed wetland system. Adcock, P. W.; Ganf, G. G.

Descriptors: waste-water-treatment; biological-treatment; wetlands--; phragmites-australis; aquatic-plants; triglochin--; nutrient-uptake; nitrogen--; phosphorus--; removal--; south-australia; artificial-wetlands; baumea-articulata; triglochin-procerum
NAL Call No.: TD420.A1P7

87. High temporal resolution measurement of nitrate uptake from flowing solutions. Raman, D. R.; Spanswick, R. M.; Walker, L. P. Bioresour-technol v.53, p.113-123. (1995). Includes references. Descriptors: oryza-sativa; nitrate-; nutrient-uptake; ion-uptake; measurement-; specific-ion-electrodes; nutrient-availability; pretreatment-; applications-; wetlands-; waste-water-treatment; constructed-wetlands Abstract: The nitrate (NO3-) uptake rates of intact, 23 day old rice plants were measured to determine the relationship between the plant's NO3- nutrition history and the NO3- uptake rate. A system for measuring NO3- uptake was designed, built and tested. Specific design goals, which were met, include: low handling shock to the plants, high measurement accuracy (4%), high temporal resolution (10 min) and minimal mass-transfer limitations to uptake. Important design factors were identified and the overall uncertainties in the reported measurements were computed. The observed uptake rates were dependent on the NO3- concentration ([NO3-]) to which the plants were exposed for the 24 h prior to testing; plants pretreated at higher [NO3-] had lower uptake rates from 200 micromolar NO3- solutions than plants pretreated at lower [NO3-]. NAL Call No.: TD930.A32

89. Hydrologic network design for a constructed wetland.
Abtew, W.; Guardo, M.; Roy, J.; Obeysekera, J.

Descriptors: wetlands--; phosphorus--; drainage--; monitoring--; hydrology--; florida--
NAL Call No.: 290.9-Am32P
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90. Influence of hydrologic loading rate on phosphorus retention and ecosystem productivity in created wetlands.

[Vicksburg, Miss. : U.S. Army Engineer Waterways Experiment Station, 1995] xii, 84 p. : ill., maps.
At head of title: Wetlands Research Program.
Descriptors: Wetland-conservation; Constructed-wetlands; Freshwater-productivity; Water-Phosphorus-content; Restoration-ecology
NAL Call No.: QH541.5.M3M57--1995
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91. Integrated constructed wetland for small communities.
Urbanc Bercic, O.; Bulc, T.

Descriptors: wetlands--; waste-water-treatment; water-flow; waste-water; sewage-effluent; horizontal-flow; nutrients--; removal--; ammonium-nitrogen; nitrate-nitrogen; organic-nitrogen-compounds; phosphorus--; cycling--; chemical-oxygen-demand; pollutants--; phragmites-australis; microbial- degradation; microorganisms--; aquatic-organisms; denitrification--; yugoslavia--; slovenia--; vertical-flow; grey-water
NAL Call No.: TD420.A1P7
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92. Inventory of constructed wetlands in the United States.
Brown, D. S.; Reed, S. C.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; wetlands--; surveys--; sewage-effluent; usa--; artificial-wetlands
93. Investigation into the use of constructed reedbeds for municipal waste dump leachate treatment.
Urbanc Bercic, O.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: landfill-leachates; biological-treatment; wetlands--; phragmites-australis; gravel--; biochemical-oxygen-demand; chemical-oxygen-demand; waste-water-treatment; yugoslavia--; artificial-wetlands; slovenia--; constructed-wetlands

94. Iron and manganese release in coal mine drainage wetland microcosms.
Tarutis, W. J. J.; Unz, R. F.

Descriptors: iron-oxides; manganese-oxides; manganese-dioxide; hematite--; iron--; manganese--; release--; mushroom-compost; sulfate--; reduction--; simulation--; wetlands--; wetland-soils; waste-water-treatment; drainage-water; coal-mine-spoil; coal-mined-land

95. The kinetics of nitrate uptake from flowing solutions by rice: influence of pretreatment and light.
Raman, D. R.; Spanswick, R. M.; Walker, L. P.

Includes references.
Descriptors: oryza-sativa; nitrate--; nutrient-uptake; ion-uptake; kinetics--; nutrient-solutions; depletion--; nutrient-availability; pretreatment--; light--; applications--; wetlands--; waste-water-treatment; michaelis-menten-kinetics; constructed-wetlands

Abstract: The kinetics of nitrate (NO3-) uptake by intact 23 day old rice plants was studied by measuring the depletion of NO3- in solutions flowing over the plant roots. A Michaelis-Menten kinetic model was applied, allowing the uptake kinetics to be characterized by two parameters: the apparent half-velocity constant, Km, and the apparent maximum uptake rate, Vmax. A propagation of uncertainty calculation revealed that the kinetic parameters could be determined with a high degree of accuracy; the standard deviation in Km was typically 15% of the Km value; the standard deviation in Vmax was typically 7% of the Vmax value. The plants were exposed to full nutrient solutions containing NO3- at 50, 200, 500 and 800 micromolar for 24 h prior to kinetic
testing, and both Km and Vmax were found to vary with pretreatment NO3- concentration, [NO3-]; plants pretreated at high [NO3-] had lower Vmax and higher Km values than plants pretreated at lower [NO3-]. However, the variations in Vmax were more consistent than those in Km. These changes in the kinetic parameters reflect an uptake system which is capable of compensating for changes in the external [NO3-] to maintain a virtually constant NO3- uptake rate in the range studied. Changes in Km and Vmax begin within 4 h of a change in [NO3-]. Light deprivation during pretreatment in 200 micromolar NO3- resulted in a complete cessation of NO3- uptake; 4-8 h of illumination were required before the uptake resumed, and uptake rates had not yet reached normal levels 8 h after the resumption of illumination.

NAL Call No.: TD930.A32
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96. Limited response of cordgrass (Spartina foliosa) to soil amendments in a constructed marsh.
Gibson, K. D.; Zedler, J. B.; Langis, R.
Includes references.
Descriptors: spartina-; ammonium-sulfate; straw-; alfalfa-; organic-amendments; green-manures; decomposition-; biomass-production; plant-density; nitrogen-; nutrient-availability; soil-fertility; sandy-soils; nutrient-uptake; salt-marshes; wetlands-; dry-matter-accumulation; salt-marsh-soils; california-; constructed-wetlands
NAL Call No.: QH540.E23
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97. Long-term impacts of sewage effluent disposal on a tropical wetland.
Osborne, P. L.; Totome, R. G.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; sewage-effluent; wetlands-; tropics-; nutrient-uptake; nitrogen-; phosphorus-; removal-; aquatic-plants; botanical-composition; papua-new-guinea
NAL Call No.: TD420.A1P7
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98. MAFES on solid ground with wastewater cleanup project.
Drapala, P.
Descriptors: waste-water; waste-water-treatment; water-purification; wetlands-; mississippi-; artificial-wetlands
NAL Call No.: 100-M69MI
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99. Methods to assess the water quality impact of a restored riparian wetland.
Vellidis, G.; Lowrance, R.; Smith, M. C.; Hubbard, R. K.
Includes references.
Descriptors: water-pollution; animal-wastes; bioremediation-;
water-quality; runoff-; riparian-forests; wetlands-;
reclamation-; pollution-control; georgia-;
wetland-restoration; nonpoint-source-pollution
NAL Call No.: 56.8-J822
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100. Microbial ecology of constructed wetlands used for treating pulp mill wastewater.
Hatano, K.; Frederick, D. J.; Moore, J. A.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: pulp-mill-effluent; waste-water-treatment;
biological-treatment; wetlands-; typha-latifolia;
scirpus-acutus; microbial-degradation; bacteria-; fungi-;
actinomycetales-; oregon-; artificial-wetlands
NAL Call No.: TD420.A1P7
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Williams, J.; Bahgat, M.; May, E.; Ford, M.; Butler, J.
Descriptors: wetlands-; waste-treatment; sewage-; gravel-;
phragmites-australis; biochemical-oxygen-demand; removal-;
ammonium-nitrogen; pollutants-; pathogens-; fecal-coliforms;
indicator-species; bacteriophages-; bacteria-;
coliform-bacteria; egypt-; england-; coliphages-;
artificial-wetlands; suspended-solids
NAL Call No.: TD420.A1P7
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102. Mineralogy of iron precipitates in a constructed acid mine drainage wetland.
Karathanasis, A. D.; Thompson, Y. L.
Includes references.
Descriptors: wetlands-; mine-spoil; drainage-;
waste-treatment; mineralogy-; iron-; chemical-precipitation;
solubility-; mineralogy-; constructed-wetlands
Abstract: Precipitates forming at various stages of acid mine drainage treatment in a high metal load (approximately 1000 mg L-1 Fe) and low pH (approximately 3) constructed wetland
were characterized by chemical dissolution, X-ray diffraction, thermal analysis, and scanning electron microscopy. Minerals precipitating in flumes and in entry wetland cells lacking vegetation included poorly crystalline ferrihydrite, lepidocrocite, goethite, possibly an akaganeite-like mineral, and high Fe/S ratio Fe oxyhydroxysulfates (similar to schwertmannite). Within vegetated wetland cells lined with crushed limestone, well-crystallized gypsum, lepidocrocite, and Fe-oxyhydroxysulfate minerals with low Fe/S ratios were accompanied by gradual reductions in ferrihydrite and akaganeite. The Fe/S molar ratios of Fe oxyhydroxysulfates in flume precipitates averaged 5.2 +/- 0.3, while those of cell precipitates averaged approximately 3.5 +/- 0.5. The oxalate-extractable (Fe(ox)) to total (Fe(t)) Fe fraction of the precipitates was considerably higher in wetland cells (1.1 +/- 0.3), where organic C was 10-fold higher than in entry flumes (0.7 +/- 0.1). Scanning electron micrographs of flume precipitates showed a fiber-like morphology of densely aggregated spherical particles, 1.5 to 2.0 mm in diameter, with a closely packed microcrystalline matrix. Precipitates collected from vegetated wetland cells formed aggregates of somewhat smaller diameter spherical particles with grassy surfaces or finger-like projections entangled with bacterial cells. The overall composition of the precipitates suggested that the Fe chemistry is controlled primarily by the solubility of Fe oxyhydroxides in flumes and by S-enriched Fe oxyhydroxysulfates, inhibited by the presence of organics and the precipitation of Fe oxyhydroxysulfates and gypsum.

103. A modified procedure for design of constructed wetlands. Chen, S.; Malone, R. F.; Fall, L.

Descriptors: waste-water-treatment; wetlands--; construction--; design-calculations; models--
NAL Call No.: 290.9-Am32P
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Includes references.
Descriptors: wetlands--; aquatic-plants; waste-treatment; runoff--; watersheds--; fields--; arachis-hypogaea; food-industry; cheesemaking--; factory-effluents; dairy-effluent; dairy-wastes; waste-water-treatment; texas--;
105. Natural treatment processes and on-site processes.
Kruzic, A. P.

Includes references.
Descriptors: waste-water-treatment; biological-treatment; application-to-land; infiltration-; wetlands-; literature-reviews; soil-infiltration-systems; constructed-wetlands
NAL Call No.: TD419.R47

106. Natural treatment systems.
Kruzic, A. P.

Includes references.
Descriptors: waste-water-treatment; aquatic-environment; systems-; aquatic-plants; wetlands-; literature-reviews; soil-based-systems
NAL Call No.: TD419.R47

107. Natural wetland polishing effluent discharging to Wooloweyah Lagoon.
Patruno, J.; Russell, J.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; wetlands-; sewage-effluent; nitrogen-; phosphorus-; removal-; nutrient-uptake; aquatic-plants; lagoons-; new-south-wales
NAL Call No.: TD420.A1P7

Karathanasis, A. D.

Descriptors: waste-water-treatment; wetlands-; biological-treatment; construction-; costs-; mine-spoil; agricultural-wastes; kentucky
NAL Call No.: SS91.55.K4S64

Rock, J.

1993. ix, 251 leaves : ill. (some col.).
Wittgren, H. B.; Tobiason, S.

Descriptors: wetlands-; nitrification-; nitrogen-; removal-; waste-water-treatment; waste-water; sewage-effluent; denitrification-; hydraulics-; water-flow; phosphorus-; sweden-; hydraulic-loading; artificial-wetlands; constructed-wetlands
NAL Call No.: TD420.A1P7

111. Nitrogen removal from reclaimed water applied to constructed and natural wetland microcosms.
Gale, P. M.; Reddy, K. R.; Graetz, D. A.

Includes references.
Descriptors: wetlands-; waste-water-treatment; florida-; nutrient-removal
NAL Call No.: TD419.R47

112. Nitrogen removal from waste treatment pond or activated sludge plant effluents with free-surface wetlands.
Horne, A. J.

Includes references.
Descriptors: wetlands-; waste-water-treatment; sewage-effluent; activated-sludge; ponds-; nitrogen-; nitrate-; removal-; denitrification-; constructed-wetlands; activated-sludge-plant-effluent
NAL Call No.: TD420.A1P7-v.31,-no.12

Van Oostrom, A. J.

114. Nutrient partitioning in a clay-based surface flow wetland.
Adcock, P. W.; Ryan, G. L.; Osborne, P. L.

Descriptors: wetlands--; nutrients--; removal--; release--; cycling--; nitrogen--; phosphorus--; organic-matter; sediment--; nutrient-content; mineral-content; plant-composition; aquatic-plants; water--; clay--; adventitious-roots; waste-water-treatment; sewage-effluent; wetland-soils; new-south-wales; artificial-wetlands; constructed-wetlands
NAL Call No.: TD420.A1P7
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Martin, C. D.; Moshiri, G. A.

In the series analytic: Wetland systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands--; biological-treatment; water-purification; landfill-leachates; aquatic-plants; phosphorus--; nitrogen--; removal--; florida--; artificial-wetlands
NAL Call No.: TD420.A1P7
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116. Nutrient removal and disinfection performance in the Byron Bay constructed wetland system.
Bavor, H. J.; Andel, E. F.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: sewage-effluent; waste-water-treatment; biological-treatment; wetlands--; nitrogen--; phosphorus--; fecal-coliforms; removal--; nutrient- uptake; aquatic-plants; new-south-wales; artificial-wetlands
NAL Call No.: TD420.A1P7
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117. The nutrient retention by ecotone wetlands and their modification for Baiyangdian Lake restoration.
Yin, C. Q.; Lan, Z. W.

Cooke, J. G.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: sewage-effluent; waste-water-treatment; biological-treatment; wetlands--; phosphorus--; nitrogen--; removal--; nutrient-uptake; aquatic-plants; denitrification--; nitrification--; nitrate--; new-zealand
NAL Call No.: TD420.A1P7
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Descriptors: Sewage-disposal,-Rural-Congresses; Constructed-wetlands-Congresses; Sewage-disposal,-Rural-United-States-Congresses
NAL Call No.: TD929.I567--1994
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120. Operating experience with constructed wetlands for wastewater treatment.
Knight, R. L.

Includes references.
Descriptors: wetlands--; waste-water-treatment; water-quality; pulp-and-paper-industry; pulp-mill-effluent
NAL Call No.: 302.8-T162
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121. An operational survey of a natural lagoon treatment plant combining macrophytes and microphytes basins. Vandevenne, L.

Descriptors: wetlands--; aquatic-plants; algae--; waste-water-treatment; waste-water; sewage--; sewage-effluent; waste-treatment; nitrogen--; phosphorus--; nutrients--; removal--; nutrient-uptake; lagoons--; belgium--; artificial-wetlands; constructed-wetlands
NAL Call No.: TD420.A1P7
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122. Orange County Florida Eastern Service Area reclaimed water wetlands reuse system.
Schwartz, L. N.; Wallace, P. M.; Gale, P. M.; Smith, W. F.; Wittig, J. T.; McCarty, S. L.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands--; water-reuse; waste-water-treatment; sewage-effluent; nutrients--; removal--; nutrient-uptake; florida--; constructed-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7
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123. Organic priority pollutants in wetland-treated leachates at a landfill in central Florida.
Chen, C. S.; Zoltek, J. Jr.

Includes references.
Descriptors: landfill-leachates; groundwater-pollution; runoff-water; landfills--; pollutants--; volatile-compounds; organic-compounds; waste-water- treatment; biological-treatment; wetlands--; microbial-degradation; sorption--; water-quality; aromatic-hydrocarbons; florida-
NAL Call No.: TD172.C54
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124. Overview: surface flow constructed wetlands.
Kadlec, R. H.

Descriptors: wetlands--; marshes--; waste-water-treatment; aquatic-plants; nutrients--; removal--; cycling--; nutrient-uptake; sorption--; microbial-degradation; water-flow; aquatic-organisms; microorganisms--; artificial-wetlands; macrophytes--; surface-flow-wetlands
NAL Call No.: TD420.A1P7
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129. Phosphorus retention by wetland soils used for treated wastewater disposal. Gale, P. M.; Reddy, K. R.; Graetz, D. A.
Abstract: Wetlands function as buffers for nutrients loaded from terrestrial ecosystems through drainage and surface discharges. The objectives of our study were to (i) determine the P retention capacity of representative wetlands soils being used for disposal of treated wastewater and (ii) relate P retention characteristics to selected physicochemical properties to evaluate likely of P removal in the soils. Intact soil cores (0-40 cm) and bulk soil samples (0-15 cm) were collected from a system of natural and constructed wetlands currently being used for disposal of treated wastewater. Floodwater P concentrations of the intact soil cores were monitored over time to determine the rate of P removal. Batch experiments were conducted to determine maximum P retention capacity of the soils. Soil samples were analyzed for inorganic P pool sizes, and selected properties. During a 21 d hydraulic retention time, the constructed wetlands (sandy, low organic matter soils) retained 52 to 66% of added P, as compared with 46 to 47% retained by the natural wetlands (high organic matter soils). The P retention as estimated using the Langmuir model, ranged from 196 to 1821 mg P kg\(^{-1}\) (aerobic incubations) and from 32 to 1415 mg P kg\(^{-1}\) (anaerobic incubations). The P sorption maximum for the soils could be by batch equilibration with a single high P solution. Anaerobic conditions increased P solubility. Organic P pools and the Fe-Al-bound fraction seemed to control P chemistry in these natural and wetlands.

130. Phosphorus retention in constructed freshwater riparian marshes.

Includes references.
Descriptors: water-pollution; phosphorus-; pollution-control; water-purification; river-water; marshes-; aquatic-plants; nutrient-uptake; wetlands-; water- quality; geological-sedimentation; nutrient-content; biomass-; phytoplankton-; water-flow; illinois-; experimental-wetlands; constructed-marshes; low-flow-wetlands; high-flow-wetlands
NAL Call No.: QH540.E23

131. Phosphorus uptake in Florida marshes.
Kadlec, R. H.

In the series analytic: Water quality international '94. Part 8: Anaerobic digestion; sludge management; appropriate
132. A pilot study of vertical flow wetlands at Coffs Harbour, New South Wales, Australia.
Chick, A. J.; Mitchell, D. S.

Descriptors: wetlands--; waste-treatment; waste-water-treatment; sewage--; sewage-effluent; water-flow; nutrients--; removal--; pollutants--; biochemical-oxygen-demand; fecal-coliforms; hydraulics--; phosphorus--; new-south-wales; suspended-solids; artificial-wetlands; constructed-wetlands
NAL Call No.: TD420.A1P7
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133. Planted soil filter--a wastewater treatment system for rural areas.
Netter, R.

Descriptors: waste-water-treatment; water-systems; rural-areas; wetlands--; filter-beds; aquatic-plants; biochemical-oxygen-demand; chemical-oxygen- demand; purification--; nutrients--; particle-size-distribution; constructed-wetlands
NAL Call No.: TD420.A1P7
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134. Pollution filtration by plants in wetland-littoral zones.
Mickle, A. M.

Literature review.
Descriptors: aquatic-plants; bog-plants; filtration--; purification--; waste-water; waste-water-treatment; wetlands--; coastal-areas; literature-reviews
NAL Call No.: 500-P53
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135. Pollution solution: build a marsh.
MacDonald, L.
136. Potential use of constructed wetlands for wastewater treatment in Northern environments.
Jenssen, P. D.; Maehlum, T.; Krogstad, T.

Descriptors: wetlands-; waste-water-treatment; cold-zones; temperate-climate; aquatic-plants; freezing-; purification-; biodegradation-; constructed-wetlands
NAL Call No.: TD420.A1P7
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Cooper, C. M.; Testa, S. I.; Knight, S. S.

Includes references.
Descriptors: dairy-wastes; waste-water; waste-water-treatment; wetlands-; scirpus-validus; on-farm-processing; water-quality; improvement-; mississippi-
NAL Call No.: S589.7.E57-1994
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138. Processes of iron and manganese retention in laboratory peat microsomes subjected to acid mine drainage.
Henrot, J.; Wieder, R. K.

Includes references.
Descriptors: peat-; acid-mine-drainage; iron-; manganese-; retention-; binding-; iron-oxides; exchangeable-cations; microbial-activities; pH-; temperature-; solubilization-; reduction-; acid-deposition; constructed-wetlands; complexation-; photoreduction-
Abstract: Despite increasing use of constructed wetlands for treatment of metal-enriched acid coal mine drainage (AMD), the biotic and abiotic mechanisms of metal retention in such wetlands are poorly understood. The present study was conducted to evaluate the processes responsible for Fe and Mn retention in peat and the effects of microbial activity, pH temperature, and metal concentration in AMD on these processes. Experimental units consisted in 30 g (wet wt.) of fresh Sphagnum peat, which was repeatedly flushed with synthetic AMD at pH 3.5. Of the four major processes of metal cation retention in peat (cation exchange, complexation with peat organic precipitation as oxides, and precipitation
as sulfides), Fe oxidation and Fe binding on peat organics were predominant, with Fe oxides and organically bound Fe making up, respectively, 62 and 22% of the total Fe in the peat at the end of the experiment. Whereas Fe complexation was a finite process, reaching saturation at 12 mg Fe g⁻¹ dry peat, Fe-oxide concentration in peat increased steadily throughout the experiment. At pH 3.5, Fe-oxide precipitation was depressed by the addition of an antiseptic (formaldehyde) to AMD, suggesting that the process was microbially mediated. Iron oxide precipitation was higher at pH 5.5 than 3.5 and less depressed at pH 5.5 than 3.5 by the presence of formaldehyde in AMD. The efficiency of peat to remove Fe from AMD was diminished at low temperature (< 15 degrees C) and high Fe concentration in AMD (> 100 mg L⁻¹). Manganese retention in peat was small compared with that of Fe, and Mn was retained in peat almost exclusively as exchangeable Mn²⁺. Retention of Fe²⁺ in peat was not affected by the presence of Mn²⁺ in AMD. Iron oxides that had accumulated in peat subjected to AMD were not readily resolubilized by any of three processes investigated: photoreduction, microbial Fe(III) reduction under reducing conditions, and exposure to simulated acid precipitation. These findings suggest that constructed wetlands may be an appropriate technology to remove Fe from AMD with low soluble Fe concentration, but are inadequate for treating drainage waters rich in soluble Mn.

NAL Call No.: QH540.J6
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139. Project end report, development of high mountain plant communities as wetland mitigation systems for copper mine effluent.
Kastning Culp, N.; Lockwood, J. A. I.; DeBrey, L.
University of Wyoming. Dept. of Plant, Soil and Insect Sciences.
Cover title.
Descriptors:
Copper-mines-and-mining-Little-Snake-River-Watershed-Colo; -and-Wyo; -Waste-disposal;
Constructed-wetlands-Little-Snake-River-Watershed-Colo; -and-Wyo;
Plants-as-sanitary-agents-Little-Snake-River-Watershed-Colo; -and-Wyo
NAL Call No.: TD899.C59K37--1993
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140. The purification efficiency of planted soil filters for wastewater treatment.
Netter, R.
141. The reality of sewage treatment using wetlands. 
Hiley, P. D.

Descriptors: wetlands-; waste-water-treatment; waste-treatment; sewage-; sewage-effluent; water-flow; ammonium-; phosphorus-; nitrogen-; removal-; biochemical-oxygen-demand; pollutants-; yorkshire-and-lancashire; surface-flow; subsurface-flow; suspended-solids; constructed-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7

142. Reed-bed treatment for municipal and industrial wastewater in Beijing, China.
Li, S. R.; Ding, T.; Wang, S.

Descriptors: phragmites-australis; wetlands-; waste-water-treatment; waste-water; sewage-effluent; beijing-; artificial-wetlands; constructed-wetlands
Abstract: The reed-bed system is a cost-effective and environmentally friendly method of treating sewage from small treatment works. A pilot-scale plant, which treated 500 m3/d of municipal and industrial wastewater, was studied in Beijing, China. The aim of the project was (i) to test the ability of the reed beds to remove pollutants for long-term operation in cold weather conditions, and (ii) to evaluate its environmental, ecological and financial values. The results of operation demonstrated that this system has the ability to remove the pollutants. One of the attractive features is that the reed beds can partly convert the pollutants into plant biomass with the natural energy from sunlight. The reeds can (a) be harvested each year, (b) provide a wildlife habitat, and (c) improve the quality of the ecosystem. Capital and operating costs of the system are comparatively low.
NAL Call No.: TD420.W374

143. Reed bed treatment systems for sewage treatment in the United Kingdom--the first 10 years' experience.
Cooper, P.; Green, B.

144. Removal efficiency of the constructed wetland wastewater treatment system at Bainikeng, Shenzhen.

Descriptors: wetlands-; waste-water-treatment; nutrients-; removal-; nitrogen-; phosphorus-; microbial-degradation; pollutants-; biochemical-oxygen- demand; chemical-oxygen-demand; aquatic-plants; aquatic-organisms; sewage-effluent; gravel-; guangxi-; organic-pollutants; suspended-solids; artificial-wetlands; vegetated-gravel-beds
NAL Call No.: TD420.A1P7
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145. Removal of pathogens from wastewaters by the root zone method (RZM).
Rivera, F.; Warren, A.; Ramirez, E.; Decamp, O.; Bonilla, P.; Gallegos, E.; Calderon, A.; Sanchez, J. T.

Descriptors: wetlands-; roots-; root-systems; phragmites-australis; typha-; pathogens-; removal-; escherichia-coli; coliform-bacteria; fecal-coliforms; salmonella-; shigella-; giardia-; entamoeba-; sarcomastigophora-; ascaris-lumbricoides; waste-water-treatment; sewage-; sewage-effluent; mexico-; england-; pathogenic-free-living-amoebae;constructed-wetlands
NAL Call No.: TD420.A1P7
******************************************************************************

146. Restoration of our lakes and rivers with wetlands--an important application of ecological engineering.
Mitsch, W. J.

Descriptors: wetlands-; aquatic-plants; water-pollution; pollution-control; sediment-; rivers-; streams-; phosphorus-; nutrient-uptake; ohio-; manmade-wetlands; riparian-wetlands; fringe-wetlands
147. A Review of literature concerning the establishment and maintenance of constructed wetlands using Scirpus, Sparganium, and other wetland species.

Cover title.
Descriptors: Wetland-plants-Great-Lakes-Region; Constructed-wetlands-Great-Lakes-Region
NAL Call No.: aQK130.R48--1992

148. Riparian forest buffer system research at the Coastal Plain Experiment Station, Tifton, GA.
Hubbard, R. K.; Lowrance, R. R.

Descriptors: riparian-forests; riparian-vegetation; grasses--; vegetation-management; clearcutting--; selective-felling; wetlands--; biological-treatment; waste-water-treatment; dairy-wastes--; pig-slurry--; aldicarb--; insecticide-residues; nutrients--; removal--; nutrient-uptake; simulation-models; nitrate--; denitrification--; water-quality; runoff--; groundwater--; groundwater-pollution; water-pollution; georgia--
NAL Call No.: TD172.W36

149. Riparian forest restoration to control agricultural water pollution.
Lowrance, R.; Hubbard, R. K.; Vellidis, G.

Includes references.
Descriptors: riparian-forests; wetlands--; dairy-effluent; lagoons--; waste-water-treatment; application-to-land; pollution-control; removal--; sediment--; nitrogen--; phosphorus--; nitrates--; denitrification--; water-quality; groundwater-pollution; georgia--; riparian-wetlands
NAL Call No.: TD365.C54-1995

150. Riparian wetlands and water quality.
Gilliam, J. W.

Descriptors: wetlands-; riparian-vegetation; water-quality; pollutants-; water-pollution; pollution-control
Abstract: Because of wet soils adjacent to the streams, riparian buffers are frequently present between farming and urban activities on the uplands and small streams. These riparian areas have been shown to be very valuable for the removal of nonpoint-source pollution from drainage water. Several researchers have measured > 90% reductions in sediment and nitrate concentrations in water flowing through the riparian areas. The riparian buffers are less effective for P removal but may retain 50% of the surface-water P entering them. I consider riparian buffers to be the most important factor influencing nonpoint-source pollutants entering surface water in many areas of the USA and the most important wetlands for surface water quality protection.
NAL Call No.: QH540.J6

151. The role of constructed wetlands and other alternative technologies in meeting the wastewater treatment needs of rural and small communities: hearing before the Subcommittee on Investigations and Oversight of the Committee on Public Works and Transportation, House of Representatives, One Hundred Second Congress, second session, August 4, 1992.
Descriptors: Constructed-wetlands-United-States; Sewage-disposal,-Rural-United-States-Technological-innovations; Sewage-Purification-Technological-innovations
NAL Call No.: KP27.P89632-1992

152. The role of wetlands, ponds, and shallow lakes in improving water quality.
Whigham, D. F.
Whigham, D. F.
Descriptors: wetlands-; ponds-; lakes-; water-systems; animal-wastes; nitrogen-; phosphorus-; movement-; waste-water-treatment; water-quality; water-pollution; constructed-wetlands-pond-systems
NAL Call No.: TD930.A55-1995

153. The roles of spent mushroom substrate for the mitigation of coal mine drainage.
Stark, L. R.; Williams, F. M.
154. Rootzone dynamics in constructed wetlands receiving wastewater: a comparison of vertical and horizontal flow systems.
Breen, P. F.; Chick, A. J.
Descriptors: wetlands-; schoenoplectus-; eleocharis-sphacelata; waste-water-treatment; roots-; root-systems; water-flow; horizontal-flow; hydraulics-; nutrients-; nitrogen-; phosphorus-; removal-; ammonium-nitrogen; hydraulic-resistance; root-density; schoenoplectus-validus; artificial-wetlands
NAL Call No.: TD420.A1P7
******************************************************************************

155. SCS technical requirements for constructed wetlands for agricultural wastewater treatment.
Krider, J. N.; Boyd, W. H.
Descriptors: agricultural-wastes; waste-water-treatment; wetlands-; regulations-
NAL Call No.: 290.9-Am32P
******************************************************************************

Descriptors: Sewage-Purification-Bibliography; Sewage-disposal-in-the-ground-Bibliography; Land-treatment-of-wastewater-Bibliography; Constructed-wetlands-Bibliography
NAL Call No.: Z5853.S22S38--1993
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Evans, J. L.; Webber, D.

NAL Call No.: 290.9-Am32P
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158. State of knowledge on reed bed treatment systems :
October 1987.
Cooper, P. F. P. F.; Hobson, J. A.; Water Research Centre (Great Britain).

Descriptors: Constructed-wetlands
NAL Call No.: TD756.5.C67-1987
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159. A stochastic approach to designing wetlands for stormwater pollution control.
Wong, T. H. F.; Somes, N. L. G.

Descriptors: wetlands-; pollution-control; rain-; storms-; runoff-; urban-areas; hydrology-; size-; structural-design; stochastic-processes; simulation-; victoria-; constructed-wetlands
NAL Call No.: TD420.A1P7-v.32,-no.1
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Izuno, F. T.; Capone, L. T.

NAL Call No.: TD420.A1P7
Reed, S. C.

"Mr. Sherwood C. Reed ... was the principal author and editor of this document"--P. i.
Descriptors: Constructed-wetlands
NAL Call No.: TD756.5.R44--1993

162. Subsurface flow wetlands--a performance evaluation.
Reed, S. C.; Brown, D.

Includes references.
Descriptors: wetlands-; aquatic-plants; waste-water-treatment; gravel-; water-flow; biochemical-oxygen-demand; organic-matter; phosphorus-; ammonia-; nitrification-; biological-treatment; total-suspended-solids; constructed-wetlands; gravel-filled-basins; subsurface-water-flow
NAL Call No.: TD419.R47

163. Surface flow and particle settling in a coastal reed field.
Hosokawa, Y.; Furukawa, K.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; wetlands-; aquatic-plants; water-flow; hydrology-; stems-; hydraulic-resistance; roughness-; geological-sedimentation; coastal-wetlands; hydraulic-roughness
NAL Call No.: TD420.A1P7

164. Swine wastewater treatment in constructed wetlands.
Hunt, P. G.; Humenik, F. J.; Szogi, A. A.; Rice, J. M.; Stone, K. C.; Sadler, E. J.

Includes references.
Descriptors: pigs-; animal-wastes; waste-water-treatment; wetlands-; juncus-effusus; scirpus-; species-; sparganium-; typha-angustifolia; typha-latifolia; glycine-max; oryza-sativa; growth-; crop-yield; wetland-soils; redox-reactions; nitrogen-; phosphorus-; removal
NAL Call No.: S589.7.E57-1994
165. A theoretical approach for minimization of excavation and media costs of constructed wetlands for BOD5 removal.
Chen, S.; Malone, R. F.; Fall, L. J.
Includes references.
Descriptors: wetlands-; design-; waste-water-treatment; biochemical-oxygen-demand; hydraulics-; subsurface-drainage; artificial-wetlands; subsurface-flow
Abstract: A modified procedure for minimizing excavation and media costs for subsurface constructed wetland design for BOD5 removal is presented. Based upon the assumptions of first order BOD5 removal kinetics, a plug-flow reactor, and hydraulics governed by Darcy's law for a constructed wetland, this procedure incorporates the currently available theory into a unique systematic design approach. The modified procedure suggests that a small slope and a small aspect ratio (length/width) should be used whenever possible. This design procedure provides an optimization rationale for each design step and relates the primary design parameters to excavation and media material costs. Operational parameters that determine the performance of constructed wetlands are more clearly defined than before based on the theoretical treatment presented. Using this design procedure, cost reductions are demonstrated for two examples.
NAL Call No.: 290.9-Am32T
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166. Toward the rational design of aquatic treatment systems.
Stowell, R. E.
Davis, Calif. : Dept. of Civil Engineering, University of California, [1980] 59 p. : ill.. "Presented at the American Society of Civil Engineers Spring Convention, Portland, Oregon, April 14-18, 1980.".
Descriptors: Sewage-Purification-Biological-treatment; Constructed-wetlands; Wetlands-
NAL Call No.: TD755.T68-1980
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167. Treating dairy waste utilizing laboratory-scale constructed wetlands.
Benham, B. L.; Mote, C. R.
Descriptors: dairy-wastes; wetlands-; waste-treatment
NAL Call No.: 290.9-Am32P
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168. Treating wastewater in constructed wetlands.
Hauck, R. D.
169. Treatment of dairy farm wastewaters in horizontal and up-flow gravel-bed constructed wetlands.
Tanner, C. C.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: waste-water-treatment; biological-treatment; dairy-wastes; dairy-effluent; wetlands-; gravel-; schoenoplectus-; nutrient-uptake; nitrogen-; phosphorus-; removal-; new-zealand; schoenoplectus-validus; artificial-wetlands
NAL Call No.: TD420.A1P7
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170. Treatment of domestic wastewater by a constructed upland-wetland wastewater treatment system.
House, C. H.; Broome, S. W. S. W. 1.; Hoover, M. T. M. T. 1.; Water Resources Research Institute of the University of North Carolina.

Descriptors: Sewage-disposal-in-the-ground-North-Carolina; Sewage-disposal,-Rural-North-Carolina; Septic-tanks-North-Carolina
NAL Call No.: TD201.N6--no.277
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171. Treatment of landfill leachate in on-site lagoons and constructed wetlands.
Maehlum, T.
Descriptors: wetlands-; landfill-; waste-water-treatment; lagoons-; aeration-; horizontal-flow; aquatic-plants; phragmites-australis; typha-latifolia; scirpus-; removal-; nitrogen-; phosphorus-; iron-; pathogens-; pollutants-; norway-; artificial-wetlands; horizontal-subsurface-flow
NAL Call No.: TD420.A1P7
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172. Treatment of mine drainage by a constructed multi-cell wetland : the Corsica Project.
Stark, L. R.; Pennsylvania State University. Environmental Resources Research Institute.
173. Treatment of nitrogen and phosphorus by a constructed upland-wetland wastewater treatment system. House, C. H.; Broome, S. W.; Hoover, M. T.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell. Descriptors: sewage-effluent; waste-water-treatment; biological-treatment; wetlands--; phosphorus--; ammonium--; nitrate--; removal--; nutrient-uptake; nitrification--; phragmites-australis; typha-angustifolia; north-carolina; constructed-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7


In the series analytic: Wetland systems for water pollution control 1994 / edited by R. H. Kadlec and H. Brix. Descriptors: wetlands--; typha-orientalis; schoenoplectus--; cyperus--; cyperaceae--; waste-water-treatment; sewage--; sewage-effluent; removal--; nutrients--; nitrogen--; phosphorus--; biochemical-oxygen-demand; pollutants--; evapotranspiration--; new-south-wales; cyperus-involucratus; suspended-solids; dissolved-solids; schoenoplectus-validus; baumea-articulata
NAL Call No.: TD420.A1P7

175. Treatment of swine wastewater by constructed wetlands. Szogi, A. A.; Hunt, P. G.; Humenik, F. J.; Rice, J. M.

Clean water, clean environment, 21st century team agriculture, working to protect water resources conference proceedings, March 5-8, 1995, Kansas City, Missouri / St. Joseph, Mich. : ASAE, c1995.. v. 2 p. 227-230. Descriptors: wetlands--; aquatic-plants; piggery-effluent; lagoons--; waste-treatment; waste-water-treatment; ammonia--; ammonium-nitrogen; nitrogen--; phosphorus--; nitrate-nitrogen; nutrient-uptake; wetland-soils; anaerobic-conditions; denitrification--; north-carolina
NAL Call No.: TD365.C54-1995

177. Upgrading pond effluents: an overview.
Middlebrooks, E. J.

Includes references.
Descriptors: waste-water-treatment; ponds--; effluents--; waste-water; wetlands--; eichhornia-crassipes; lemna--; constructed-wetlands
NAL Call No.: TD420.A1P7-v.31,-no.12

178. Usage of drainmod-creams in evaluating constructed wetlands.
Shirmohammadi, A.; Cronk, J. K.

Descriptors: wetlands--; denitrification-
NAL Call No.: 290.9-Am32P

179. Use of artificial wetlands for the treatment of recreational wastewater.
Vincent, G.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: water-purification; wetlands--; biological-treatment; aquatic-plants; nutrient-uptake; phosphorus--; nitrogen--; nitrate--; lakes--; water- recreation; beaches--; waste-water; waste-water-treatment; quebec--; constructed-wetlands; artificial-lakes
NAL Call No.: TD420.A1P7

180. Use of constructed wetland to protect bathing water quality.
Coombs, C.; Collett, P. J.
181. The use of constructed wetlands for treating industrial effluent (textiles dyes).
Davies, T. H.; Cottingham, P. D.

182. Use of constructed wetlands in water pollution control: historical development, present status, and future perspectives.
Brix, H.

Martin, C. D.; Johnson, K. D.
184. The use of macrophytes in bioremediation.
Wood, B.; McAtamney, C.
Descriptors: waste-water-treatment; bioremediation-; wetlands-; reviews-; reed-bed-systems; constructed-wetlands

185. The use of wetlands for the control of non-point source pollution.
Raisin, G. W.; Mitchell, D. S.
Descriptors: wetlands-; pollution-control; water-pollution; water-flow; nitrogen-; phosphorus-; removal-; release-; winter-; spring-; summer-; cycling-; aquatic-plants; aquatic-organisms; microorganisms-; watersheds-; dairy-farms; pastures-; new-south-wales; natural-wetlands; constructed-wetlands; artificial-wetlands

186. The use of wetlands for water pollution control in Australia: an ecological perspective.
Mitchell, D. S.; Chick, A. J.; Raisin, G. W.
Descriptors: wetlands-; waste-water-treatment; waste-water; sewage-effluent; runoff-water; nutrients-; removal-; nitrogen-; phosphorus-; water-flow; aquatic-plants; pollution-control; australia-; natural-wetlands; constructed-wetlands; vertical-flow

187. Using a constructed wetland to treat waste water and propagate wetland species.
Beagle, G.; Justin, J.
Includes references.
Descriptors: waste-water-treatment; wetlands-; ponds-; aquatic-plants; crop-production; nurseries-; propagation-;
188. Using decomposition kinetics to model the removal of mine water pollutants in constructed wetlands.
Tarutis, W. J. Jr.; Unz, R. F.

In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands-; ferrous-ions; removal-; pollutants-; mine-spoil; mined-land; drainage-water; decomposition-; organic-compounds; biological- treatment; mathematical-models; anaerobic-conditions; artificial-wetlands
NAL Call No.: TD420.A1P7

189. Using reed beds for winter operation of wetland treatment system for wastewater.
Yin, H.; Shen, W. R.

Descriptors: wetlands-; phtagmites-; waste-water-treatment; industrial-wastes; sewage-; horizontal-flow; waste-water; percolation-; infiltration-; winter-; pollutants-; biochemical-oxygen-demand; nitrogen-; phosphorus-; removal-; water-quality; effluents-; northern-china; artificial-wetlands; constructed-wetlands; suspended-solids; constructed-infiltration-wetland-treatment-system
NAL Call No.: TD420.A1P7

190. Using water hyacinth (Eichhornia Crassipes L.) to treat municipal wastewater.
Karpiscak, M. M.; Foster, K. E.; Hope, S. B.; Warshall, P. J.

Includes references.
Descriptors: eichhornia-crassipes; waste-water-treatment; municipal-refuse-disposal; wetlands-
NAL Call No.: S612.A753

191. Variability in treatment by constructed wetlands.
Kuehn, E.; Moore, J. A.

192. Variability of treatment performance in constructed wetlands.
Kuehn, E.; Moore, J. A.

Descriptors: wetlands-; waste-water-treatment; pulp-mill-effluent; pollutants-; removal-; biochemical-oxygen-demand; aquatic-plants; scirpus-acutus; typha-latifolia; oregon-; artificial-wetlands; suspended-solids
NAL Call No.: TD420.A1P7
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193. Versatility of Wetlands in the Agricultural Landscape:
Versatility of wetlands in the agricultural landscape.
"An international conference jointly sponsored by AWRA, American Water Resources Association ; ASAE, the Society for Engineering in Agricultural, Food and Biological Systems"--Cover.
Descriptors: Wetlands-Congresses; Constructed-wetlands-Congresses; Water-in-agriculture-Congresses
NAL Call No.: QH87.3.V47--1995
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194. Wetland for treating liquid dairy waste design and monitoring.
Lanier, A. L.; Fox, D.; Smith, D. W.
Descriptors: dairy-wastes; waste-water-treatment; wetlands-; california-
NAL Call No.: 290.9-Am32P
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195. Wetland systems for water pollution control 1994:
selected proceedings of the 4th International Conference on Wetland Systems for Water Pollution Control, held in Guangzhou, China, 6-10 November, 1994. 1st ed.
Kadlec, R. H.; Brix, H.; International Conference on Wetland Systems for Water Pollution Control (4th : 1994 : Guangzhou,
C.

On cover: IAWQ, International Association on Water Quality.
Descriptors: Water-Pollution-Congresses; Wetlands-Congresses; Constructed-wetlands-Congresses; Water-quality-management-Congresses
NAL Call No.: TD420.A1P7--v.32-no.3
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On cover: IAWQ, International Association on Water Quality.
Descriptors: Water-Pollution-Congresses; Wetlands-Congresses; Constructed-wetlands-Congresses; Water-quality-management-Congresses
NAL Call No.: TD420.A1P7--v.29-no.4
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197. Wetland treatment for trace metal removal from mine drainage: the importance of aerobic and anaerobic processes.
Eger, P.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: wetlands--; metals--; metal-ions; removal--; drainage-water; mine-spoil; mined-land; nickel--; drainage--; aerobiosis--; anaerobic-conditions; minnesota--; constructed-wetlands; artificial-wetlands; acid-mine-drainage
NAL Call No.: TD420.A1P7
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Moore, J. A.; Skarda, S. M.; Sherwood, R.
In the series analytic: Wetlands systems in water pollution control / edited by H.J. Bavor and D.S. Mitchell.
Descriptors: pulp-mill-effluent; waste-water-treatment; biological-treatment; aquatic-plants; ponds--; biochemical-oxygen-demand; color--; removal--; oregon--; constructed-wetlands; artificial-wetlands
NAL Call No.: TD420.A1P7
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199. Wetlands and streams as off-site sinks for agricultural chemicals.
Crumpton, W. G.; Baker, J. L.; Owens, J.; Rose, C.; Stenback, J.

Clean water, clean environment, 21st century team agriculture, working to protect water resources conference proceedings, March 5-8, 1995, Kansas City, Missouri / St. Joseph, Mich. : ASAE, c1995. v. 1 p. 49-52. Includes references. Descriptors: nitrate-; nitrate-nitrogen; losses-from-soil; watersheds-; wetlands-; streams-; hydrology-; surface-water; simulation-models; pollution- control; water-pollution; iowa-
NAL Call No.: TD365.C54-1995

Adams, E. B.


201. Wetlands that work for you.
Bowman, G.; Wetlands that work for you.


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