

REFERENCES

- Abeliovich A. and Vonshak A. (1992). Anaerobic metabolism of *Nitrosomonas europaea*. *Archives of Microbiology*, **158**, 267-270.
- Abis, K. L. (2002). *The Performance of Facultative Waste Stabilization Ponds in the United Kingdom*. PhD Thesis, School of Civil Engineering, University of Leeds, Leeds.
- Abis K.L. and Mara D.D. (2003). Research on waste stabilisation ponds in the United Kingdom – initial results from pilot-scale facultative ponds. *Water Science and Technology*, **48**(2), 1-7.
- Abis K.L. and Mara D.D. (2006). Temperature measurement and stratification in facultative waste stabilisation ponds in the UK climate. *Environmental Monitoring and Assessment*, **114**(3), 35-47.
- Ahn Y. (2006). Sustainable nitrogen elimination biotechnologies: A review. *Process Biotechnology*, **41**, 1709-1721.
- Aleem, M.I.H., Hoch, G.E. and Varner, J.E. (1965). Water as the Source of Oxidant and Reductant in Bacterial Chemosynthesis. *The Proceedings of the National Academy of Sciences USA*, **54**(3), 869-873.
- Amaral J. A., Archambault C., Richards S. R., Knowles R. (1995). Denitrification associated with Groups I and II methanotrophs in a gradient enrichment system. *FEMS Microbiology Ecology*, **18**, 289-298.
- Andersen, R.A., Berges, J.A., Harrison, P.J. and Watanabe, M.M. (2005). Recipes for fresh water and sea water media. In: *Algal Culturing Techniques* (R. A. Andersen, ed.), 429–532. Academic Press, China.
- Askemas L. R., Johnson S. L., Gregory S. V., Tank J. L., Wollheim W. M. (2004). A stable isotope tracer study of nitrogen uptake and transformation in an old-growth forest stream. *Ecology*, **85**(6), 1725-1739.
- APHA (1998). *Standard Methods for the Examination of Water and Wastewater*, 20th ed. American Public Health Association, Washington, DC.
- Bagchi S. N., Rai U. N., Rai A. N., Singh H. N. (1985). Nitrate metabolism in the cyanobacterium *Anabaena cycadeae*: regulation of nitrate uptake and reductase by ammonia. *Physiologia Plantarum*, **63**(3), 322-326.
- Becker E. W. (1994). *Microalgae: Biotechnology and Microbiology*. In: Cambridge Studies in Biotechnology (10), ed. Sir J. Baddiley, N. H. Carey, I. J. Higgins and W. G. Potter. Cambridge University Press, Cambridge.
- Benson D. A., Karsch-Mizrachi I., Lipman D. J., Ostell J., Wheeler D. L. (2008). GenBank. *Nucleic Acids Research* **36**, Database issue D25 –D30, doi:10.1093/nar/gkm929.
- Bich N. N., Yaziz M. I., Bakti N. A. K. (1999). Combination of *Chlorella vulgaris* and *Eichhornia crassipes* for wastewater nitrogen removal. *Water Research*, **33**(10), 2357-2362
- Blackall L. L. and Burrell P. C. (1999). The microbiology of nitrogen removal in activated sludge systems. In *The Microbiology of Activated Sludge* (eds R. J. Seviour and L. L. Blackall), Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Bock E., Wilderer P. A., Freitag A. (1988). Growth of *Nitrobacter* in the absence of dissolved oxygen. *Water Research*, **22**(2), 245-250.
- Bracho, N., Lloyd, B., Aldana, G. (2006). Optimisation of hydraulic performance to maximise faecal coliform removal in maturation ponds. *Water Research* **40**, 1677–1685.
- Bradley R. M. (1983). BOD removal efficiencies in two stabilization lagoons in series in Malaysia. *Water Pollution Control*, **82**(1), 114-122.
- Brock T.D., Madigan M.T., Martinko J.M. and Parker J. (1994). *Biology of Microorganisms*. (Seventh Edition). Prentice-Hall International, USA.
- Brooks P. D., Stark J. M., McInteer B. B. and Prestos T. Diffusion method to prepare soils extracts for automated nitrogen-15 analysis. *Journal of American Soil Society*, **53**, 1707-1711.
- Brown, L. (2006). Appetite for destruction. *FORTUNE*. Europe edition, September 4, **154**(4), 28.
- Butler, C. S. and Richardson, D. J. (2005). The emerging molecular structure of the nitrogen cycle: an introduction to the proceedings of the 10th annual N-cycle meeting. *Biochemical Society Transactions*, **33**, 113–118.

- Caicedo Bejarano J. R. (2005). *Effect of operational variables on nitrogen transformations in duckweed stabilization ponds*. PhD thesis, The UNESCO – IHE Institute for Water Education, Delf, The Netherlands.
- Camargo Valero, M. A., Johnson, M., Mather, T., Mara, D. D. (2007). Enhanced phosphorus removal in a waste stabilization pond system with blast furnace slag filters. *In Proceedings of the II International Conference SmallWat07*, Seville, 11–15 November.
- Castignetti D. and Hollocher T. C. (1984). Heterotrophic nitrification among denitrifiers. *Applied and Environmental Microbiology*, **47**(7), 620–623.
- CEC – Council of the European Communities (1991). Directive concerning urban waste water treatment (91/271/EEC). *Official Journal of the European Communities*, **L135**, 40-52 (30 May).
- CEC – Council of the European Communities (2000). Directive establishing a framework for Community action in the field of water policy (2000/60/EC). *Official Journal of the European Communities*, **L327**, 1-72 (22 December).
- CEC – Council of the European Communities (1998). Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof. *Official Journal of the European Communities* L67/29-30 (7 March).
- Costello A.M. and Lidstrom M.E. (1999). Molecular Characterization of functional and phylogenetic genes from natural populations of methanotrophs in lake sediments. *Applied and Environmental Microbiology* **65**(11), 5066–5074.
- Cox P. A. (1995). *The Elements on Earth: Inorganic Chemistry in the Environment*. Oxford University Press, Oxford.
- Craggs R. (2005). Nutrients. In: *Pond Treatment Technology*, A. Shilton (ed.), IWA, London.
- Crites, R. W., Middlebrooks, E. J., Reed, S. C. (2006). *Natural Wastewater Treatment Systems*. CRC Press, Boca Ratón, FL.
- Curtis T. P. and Mara D. D. (1994). *The effect of sunlight on mechanisms for the die-off of faecal coliforms in waste stabilization ponds*. Research Monograph No.1. University of Leeds, Leeds.
- Davenport R. J. (ed) (2005). *Molecular Microbiology Workshop*. School of Civil Engineering and Geosciences, University of Newcastle upon Tyne, 17–20 May 2005.
- Defra – Department for Environment Food and Rural Affairs (2002). *Sewage Treatment in the UK: Implementation of the EC Urban Waste Water Treatment Directive*. London: Defra.
- Defra – Department for Environment Food and Rural Affairs (2007). *Sensitive Areas in the UK*. www.Defra.gov.uk/environment/water/quality/uwwtd/sensarea/sensareas-summary.htm (accessed 20th March 2008).
- Digiano, F. A., Middlebrooks, E. J., and Ferrara, R. A. (1982). Discussion of ammonia nitrogen removal in facultative wastewater stabilization ponds and nitrogen dynamics in waste stabilization ponds. *Journal of Water Pollution Control Federation*, **54**, 1617–1618.
- Dissayanake M. G. (1980). Kinetics of bacterial die-off in waste stabilization ponds. PhD Thesis, Asian Institute of Technology, Bangkok.
- Dunfield P. F., Liesack W., Henckel T., Knowles R., Conrad R. (1999). High-affinity methane oxidation by soil enrichment culture containing a type II methanotroph. *Appl. Environ. Microbiol.* **65**, 1009–1014.
- Emerson, K., Russo, R. C., Lund, R. E., Thurson, R. V. (1975). Aqueous ammonia equilibrium calculations: effect of pH and temperature. *Journal of the Fisheries Research Board of Canada* **32**, 2379–2383.
- Epworth, R. E. (2004). *Ammonia Volatilization Rates from Primary Facultative and Maturation Wastewater Ponds in the United Kingdom* (MSc(Eng) thesis). University of Leeds, Leeds..
- Faure G. and Mensing T. M. (2005). *Isotopes Principles and Applications*. Third Edition, John Wiley & Sons Inc. New Jersey.
- Ferrara R. A. and Avci C. B. (1982). Nitrogen dynamics in waste stabilization ponds. *Journal of Water Pollution Control Federation*, **54**(4), 361-369.
- Ferrara R. A. and Harleman D. R. F. (1978). A dynamic nutrient cycle model for waste stabilization ponds. Tech. Rept. No. 237, R. M. Parsons Laboratory for Water Resources and Hydraulics, Massachusetts Institute of Technology, Cambridge.
- Ferrara R. A. and Harleman D. R. F. (1981). Dynamic nutrient cycle model for waste stabilization ponds. *Journal of Environmental Engineering Division, American Society of Civil Engineers*, **107**(EE4), 817-830.
- Flynn K. J. (1991). Algal carbon-nitrogen metabolism: a biochemical basis for modelling the interactions between nitrate and ammonium uptake. *Journal of Plankton Research*, **13**(2), 373-387.

- Francis C.A., Roberts K.J., Beman J.M., Santoro A.E., Oakley, B.B. (2005). Ubiquity and diversity of ammonia-oxidizing archaea in water columns and sediments of the ocean. *PNAS* **102**, 14683–14688.
- Freitag T. E., Chang L., Clegg C. D., Prosser J. I. (2005). Influence of inorganic nitrogen management regime on the diversity of nitrite-oxidizing bacteria in agricultural grassland soils. *Appl. Environ. Microbiol.* **71**, 8323–8334.
- Freitag A., Rudert M., Bock E. (1987). Growth of *Nitrobacter* by dissimilatory nitrate reduction. *FEMS Microbiology Letters*, **48**, 105-109.
- Gijzen H. J. (2001). Anaerobe, aerobes and phototrophs: A winning team for wastewater management. *Water Science and Technology*, **44**(8), 123-132.
- Gijzen H. J. and Mulder A. (2001). The nitrogen cycle out of balance. *Water21*, August, 38-40. International Water Association, London.
- Griffin, P. and Pamplin, C. (1998). The advantages of a constructed reed bed based strategy for small sewage treatment works. *Water Science and Technology*, **38**(3), 143–150.
- Gunter F. and Mensing T. M. (2005). *Isotopes Principles and Applications*. Third edition, John Wiley & Sons Inc, New Jersey.
- Hall E. R. and Murphy K. L. (1980). Estimation of nitrifying biomass and kinetics in wastewater. *Water Research*, **14**, 297-304.
- Halling-Sørensen B. and Jørgensen S. E. (ed.) (1993). *The removal of nitrogen compounds from wastewater*. Elsevier, Amsterdam, The Netherlands.
- Harrison A. D., Keller P., Dimović D. (1960). Ecological studies on Olifantsvlei, near Johannesburg. *Hydrobiologia*, **15**(1-2), 89-134.
- Hsieh C. (2000). Analysis of Nitrogen Sedimentation in Advanced Integrated Water Pond System (AIWP) at Richmond Field Station, U.C. Berkeley. U.C. In Proceedings of the Senior Research Seminar Environmental Sciences Group Major, University of California at Berkeley, Berkeley, CA. <http://socrates.berkeley.edu/~es196/projects/2000final/hsieh.pdf> [02 Sep 2008].
- Hemens J. and Mason M. H. (1968). Sewage nutrient removal by a shallow algal stream. *Water Research*, **2**(4), 277-287.
- Holmes A.J., Costello A.M., Lidstrom M.E., Murrell J.C., (1995). Evidence that particulate methane monooxygenase and ammonia monooxygenase may be evolutionarily related. *FEMS Microbiology Letters* **132**(3), 203–208.
- Holmes R. M., McClelland J. W., Sigman D. M., Fry B. and Peterson B. J. (1998). Measuring $^{15}\text{N-NH}_4^+$ in marine, estuarine and fresh waters: An adaptation of the ammonia diffusion method for samples with low ammonium concentrations. *Marine Chemistry*, **60**, 235-243.
- Howard R. W., Marino R., Lane J., Cole J. J. (1988). Nitrogen Fixation in Freshwater, Estuarine, and Marine Ecosystems. 1. Rates and Importance. *Limnology and Oceanography*, **33**(4), part 2, 669-687.
- Hurse T. J. and Connor M. A. (1999). Nitrogen removal from wastewater treatment lagoons. *Water Science and Technology*, **39**(6), 191-198.
- IFA – International Fertilizer Industry Association (2007). Nitrogen fertilizer nutrient consumption. URL: <http://www.fertilizer.org/ifa/statistics/indicators/tablen.asp> [10 December 2007].
- Jetten M. S. M., Wagner M., Fuerst J., van Loosdrecht M., Kuenen G., Strous M. (2001). Microbiology and application of the anaerobic ammonium oxidation ('anammox') process. *Current Opinion in Biotechnology*, **12**(3), 283-288.
- Johnson, M., Camargo Valero, M. A. and Mara D. D. (2007). Comparison of tertiary maturation ponds and rock filters in the UK: statistical analysis of winter performance. *Water Science and Technology* **55**(11), 135-142.
- Johnson, M., and Mara, D. D. (2002). Research on waste stabilization ponds in the United Kingdom – II. Initial results from pilot-scale maturation ponds, reedbed channel and rock filters". In *Pond Technology for the New Millennium*, New Zealand Water and Wastes Association, Auckland, New Zealand, 11–18.
- Juanico M., Weinberg H., Soto N. (2000). Process design of waste stabilisation ponds at high altitude in Bolivia. *Water Science and Technology*, **42**(19), 307-313.
- Juretschko S., Timmermann G., Schmid M., Schleifer K., Pommerening-röser A., Koops H., Wagner P. (1998). Combined Molecular and Conventional Analyses of Nitrifying Bacterium Diversity in Activated Sludge: *Nitrosococcus mobilis* and *Nitrospira*-Like Bacteria as Dominant Populations. *Applied and Environmental Microbiology*, **64**(8), 3042–3051.
- Khademi S., O'Connell III J., Remis J., Robles-Colmenares Y., Miercke L. J. W., Stroud R. M. (2004). Mechanism of ammonia transport by Amt/MEP/Rh: Structure of AmtB at 1.35 Å. *Science*, **307**, 1587-1594.

- Kanazawa, N. and Urushigawa, Y. (2007). Estimation of nitrogen removal rate in aqueous phase based on d15N in micro-organisms in solid phase. *Water Research*, **41**, 3201–3208.
- Keplinger, K.O., Houser, J. B., Tanter, A. M., Hauck, L. M., Beran, L. (2004). Cost and Affordability of Phosphorus Removal at Small Wastewater Treatment Plants. *Small Flows Quarterly*, **5**(4), 36–49.
- Kilani J. S. and Ogunronbi J. A. (1984). Effects of baffles on the performance of model waste stabilization ponds. *Water Research*, **18**(8), 941-944.
- Knowles R. 2005. Denitrifiers associated with methanotrophs and their potential impact on the nitrogen cycle. *Ecological Engineering*, **24**(5), 441-446.
- Könneke M., Bernhard A. E., de la Torre J. R., Walker C. B., Waterbury J. B., Stahl D. A. (2005). Isolation of an autotrophic ammonia-oxidizing marine archaeon. *Nature*, **437**(7058), 543-546.
- Kool, D. M., Wrage, N., Oenema, O., Dolfing, J., Van Groenigen, J. W. (2007). Oxygen exchange between (de)nitrification intermediates and H₂O and its implications for source determination of NO₃ and N₂O: a review. *Rapid Communications in Mass Spectrometry*, **21**, 3569–3578.
- Korste G. J. J., Appeldoorn K. J., Bonting C. F. C., van Niel E. W. J., van Veen H. W. (1994). Biology of polyphosphate-accumulating bacteria involved in enhanced phosphorus removal. *FEMS Microbial Reviews*, **15**, 137-153.
- Kowalchuk G. A., Stephen J. R., Deboer W., Prosser J. I., Embley T. M., Woldendorp, J. W. (1997). Analysis of ammonia-oxidizing bacteria of the beta subdivision of the class Proteobacteria in coastal sand dunes by denaturing gradient gel electrophoresis and sequencing of PCR-amplified 16S ribosomal DNA fragments. *Appl Environ Microbiol.* **63**(4), 1489-1497.
- Kreft G., Van Eck H., Stander G. J. (1958) A short note on the possibility of removing ammonia from sewage effluents by raising the pH. *Water and Waste Treatment Journal*, **7**, 53.
- Kuenen J. G., (2008). Anammox bacteria: from discovery to application. *Nature Reviews Microbiology*, **6**, 320-326.
- Kumar S., Nicholas D. J. D., Williams E. H. (1983). Definite ¹⁵N NMR evidence that water serves as source of 'O' during nitrite oxidation by *Nitrobacter agilis*. *FEBS Letters*, **152**, 71-74.
- Laanbroek H. J., Bodelier P. L. E., Gerards S. (1994). Oxygen consumption kinetics of *Nitrosomonas europaea* and *Nitrobacter hamburgensis* grow in mixed continuous cultures at different oxygen concentrations. *Archives of Microbiology*, **161**, 156-162.
- Lai P. C. C and Lam P. K. S. (1997). Major pathways for nitrogen removal in waste water stabilization ponds. *Water, Air and Soil Pollution*, **94**, 125-136.
- Levenspiel O. (1999). *Chemical reaction engineering*. 3rd Edition. Wiley, New York.
- Logemann S., Schantl J., Bijvank S., Van Loosdrecht M. C. M., Kuenen J. G., Jetten M. (1998). Molecular microbial diversity in a nitrifying reactor system without sludge retention. *FEMS Microbiology Ecology*, **27**, 239-249.
- Long, M. (2006). *Performance Evaluation of the Scrayingham Waste Stabilization Pond System, North Yorkshire*. MEng Dissertaton. School of Civil Engineering, University of Leeds, Leeds.
- Magasanick B. (1988). Reversible phosphorylation of an enhancer binding protein regulates the transcription of bacterial nitrogen utilization genes. *Trends in Biochemical Sciences*, **13**(12), 475-479.
- Malan W. M. (1964). A guide to the use of septic tank systems in South Africa. *CSIR Research Report No. 219*. National Institute for Water Research, Pretoria.
- Mara D. D. (1987). Waste stabilisation ponds: Problems and controversies. *Water Quality International*, **1**, 20-22.
- Mara D. D. (2004). *Domestic Wastewater Treatment in Developing Countries*. Earthscan, London.
- Mara, D. D., (2006). Septic tanks, baffled facultative ponds and aerated rock filters: a high-efficiency low-cost wastewater treatment system for small communities up to ~500 p.e. E-WATER (ejournal of the European Water Association, available at www.ewaonline.de/journal/online.htm).
- Mara D. D., Alabaster G. P., Pearson H. W., Mills S. W. (1992) *Waste Stabilization Ponds: a Design Manual for Eastern Africa*. Lagoon Technology International, Leeds.
- Mara, D. D. and Pearson, H. (1986). Artificial freshwater environment: waste stabilization ponds. *In Biotechnology*. Rehm, H. J. and Reed, G. (eds.). VCH Verlagsgesellschaft: Weinheim. **8**, 77-206.
- Mara D. D. and Pearson H. W. (1998). Design Manual for Waste Stabilization Ponds in Mediterranean Countries. Lagoon Technology International, Leeds.
- Mara G. v R. (1974). Faecal bacterial kinetics in waste stabilization ponds. *Journal of Environmental Engineering Division, American Society of Civil Engineers*, **100** (EE1), 119-139.

- Marais G. v R. and Shaw V. A. (1961). A rational theory for the design of sewage stabilization ponds in Central and South Africa. *Transactions of the South African Institute of Civil Engineering*, **3**, 205-227.
- Marecos do Monte, M. and Mara, D. (1987). The hydraulic performance of waste stabilization ponds in Portugal. *Water Science and Technology*, **19**(12), 219–227.
- Maynard H. E., Ouki S. K., Williams S. C. (1999). Tertiary lagoons: a review of removal mechanisms and performance. *Water Research*, **33** (1), 1-13.
- McGarry M. G. and Pescod M. B. (1970). Stabilization Pond Design Criteria for Tropical Asia. In *2nd International Symposium for wastewater treatment lagoons*, McKinney, R. ed., Kansas City, Missouri.
- Met Office (2008). *UK climate and weather statistics*,
<http://www.metoffice.gov.uk/climate/uk/index.html>. [06 Aug 2008].
- Metcalf and Eddy Inc. (1991). *Wastewater Engineering. Treatment, Disposal and Reuse*. Tchobanoglous G. and Burton F.L. (eds.). (Third Edition). McGraw Hill, Singapore.
- Middlebrooks E. J., Adams V. D., Bilby S., Shilton A. (2005). Solids removal and other upgrading techniques. In: *Pond Treatment Technology*, A. Shilton (ed.), IWA, London.
- Milner M.G., Curtis T.P., Davenport R. J. (2008). Presence and activity of ammonia-oxidising bacteria detected amongst the overall bacterial diversity along a physico-chemical gradient of a nitrifying wastewater treatment plant. *Water Research* **42**(12), 2863-2872.
- Morrison J. E. D. (1984). *Biological Nitrification and Denitrification in Lagoons*. BSc(Hons) thesis, Department of Microbiology. University of Melbourne, Melbourne.
- Mulder A. (1992). *Anoxic Ammonium Oxidation*, US patent 427849(5078884).
- Mulder A. (2003). The quest for sustainable nitrogen removal technologies. *Water Science and Technology*, **48**(1), 67-75.
- Mulder A., van de Graaf A.A., Robertson L. A. and Kuenen J. B. (1995). Anaerobic ammonium oxidation discovered in a denitrifying fluidized bed reactor. *FEMS Microbiology Ecology*, **16**, 177-184.
- Mulholland P. J., Tank J. L., Sanzone D. M., Wollheim W. M., Peterson B. J., Webster J. R., Meyer J. L. (2000). Nitrogen cycling in a forest stream determined by ¹⁵N tracer addition. *Ecological Monographs*, **70**(3), 471-493.
- Murrell J. C. and Radajewski S. 2000. Cultivation-independent techniques for studying methanotroph ecology. *Research in Microbiology*, **151**(10), 807-814.
- Oswald W. J. (1988). *Micro-algae and Wastewater Treatment*. In M. A. Borowitzka and L. J. Borowitzka (eds), *Micro-algal Biotechnology*, 305-328, Cambridge University Press, Cambridge.
- Pano A. and Middlebrooks E. J. (1982) Ammonia nitrogen removal in facultative wastewater stabilization ponds. *Journal of Water Pollution Control Federation*, **54**(4), 344-351.
- Pearson H. W. (2005). Microbiology of waste stabilisation ponds. In: *Pond Treatment Technology*, A. Shilton (ed.), IWA, London.
- Pearson H. W., Mara D. D. and Bartone C. R. (1987a). Guidelines for the minimum evaluation of the performance of full-scale waste stabilization pond systems. *Water Research*, **21**(9), 1067-1075.
- Pearson, H.W., Mara, D.D., Konig, A., de Oliveira, R., Silva, S.A., Mills, S. and Smallman, D.J. (1987b). Water column sampling as a rapid and efficient method of determining effluent quality and the performance of waste stabilisation ponds. *Water Science and Technology*, **19**(12), 109-113.
- Pearson H. W., Mara D. D., Mills S. W. and Smallman D. J. (1987c). Physico-chemical parameters influencing faecal bacterial survival in waste stabilization ponds. *Water Science and Technology*, **19**(12), 145-152.
- Pearson, H.W., Mara, D.D. and Mills, S.W. (1988). *Rationalizing waste stabilization pond design: the biological factor*. In *Water Pollution Control in Asia* (T. Panswad, C. Polprasert and K. Yamamoto, eds), pp. 691–697. Pergamon Press, Oxford.
- Pel R., Oldenhuis R., Brand W., Vos A., Gottschal J. C., Zwart K. B. (1997). Stable-Isotope analysis of a combined nitrification-denitrification sustained by thermophilic methanotrophs under low-oxygen conditions. *Applied and Environmental Microbiology*, **63**(2), 474-481.
- Peña Varón M. R. (2002). Advanced primary treatment of domestic wastewater in tropical countries: development of high-rate anaerobic ponds. PhD Thesis, Civil Engineering, University of Leeds, Leeds.

- Picot B., Andrianarison T., Gosselin J.P., Brissaud F. (2005). Twenty years' monitoring of Mèze stabilisation ponds: Part I – Removal of organic matter and nutrients. *Water Science and Technology*, **51**(12), 23–31.
- Picot B., Andrianarison T., Olijnyk D. P., Wang X., Qiu J. P., Brissaud F. (2007). Nitrogen removal in wastewater stabilisation ponds. *In Proceedings of the II International Conference SmallWat07*, Seville, 11–15 November.
- Polprasert G., Dissanayake M. G., Thanh N. C. (1983). Bacterial die-off kinetics in waste stabilization ponds. *Journal of the Water Pollution Control Federation*, **55**, 285-295.
- Poth M. (1986). Dinitrogen production from nitrite by *Nitrosomonas* isolate. *Applied and Environmental Microbiology*, **52**(4), 957-959
- Postage J. R. (1998). *Nitrogen Fixation*. Third Edition, Cambridge University Press, Cambridge.
- Raessler, M. and Hilke, I. (2006). Ion-Chromatographic determination of low concentrations of nitrate in solutions of high salinity. *Microchimica Acta*, **154**, 27–29.
- Reddy K. R. (1983). Fate of nitrogen and phosphorous in a waste-water retention reservoir containing aquatic macrophytes. *Journal of Environmental Quality*, **12**(1), 137-141.
- Reed S. C. (1985). Nitrogen removal in waste stabilization ponds. *Journal of Water Pollution Control Federation*, **57**(1), 39-45.
- Reed S. C., Middlesbrooks E. J. and Crites R. W. (1988). *Natural Systems for Waste Management and Treatment*. McGraw Hill, New York.
- RFA – Renewable Fuel Association (2008). *Industry Statistics: Historic US Fuel Ethanol Production*. URL: <http://www.ethanolrfa.org/industry/statistics/#A> [07 May 2008].
- Richardson B., Orcutt D. M., Schwertner H. A., Martinez C. L., Wickline A. H. E. (1969). Effects of Nitrogen Limitation on the Growth and Composition of Unicellular Algae in Continuous Culture. *Applied Microbiology*, **18**(2), 245-250.
- Ritchie G. A. F. and Nicholas D. J. D. (1972). Identification of the sources of nitrous oxide produced by oxidative and reductive processes in *Nitrosomonas europaea*. *Biochemical Journal*, **126**, 1181-1191.
- Ritter W. F. and Eastburn R. P. (1988). A review of denitrification in on-site wastewater treatment systems. *Environmental Pollution*, **51**, 49-61.
- Robertson L. A. and Kuenen J. G. (1992). Nitrogen removal from water and wastewater. In *Microbial Control of Pollution* (eds. J. C. Fry, G. M. Gadd, R. A. Herbert, G. W. Jones and I. A. Warson-Craik), Cambridge University Press, Cambridge, 227-267.
- Rockne, K. J. and Brezonik, P. L. (2006). Nutrient removal in a cold-region wastewater stabilization pond: importance of ammonia volatilization. *Journal of Environmental Engineering*, ASCE, **132** (4), 451–459.
- Rowan A.K, Snape J. R., Fearnside D., Barer M. R., Curtis T. P., Head I. M. (2003). Composition and diversity of ammonia-oxidising bacterial communities in wastewater treatment reactors of different design treating identical wastewater. *FEMS Microbiology Ecology*, **43**(2), 195-206.
- Rundel P. W., Ehleringer J.R. and Nagy K.A. (eds.) (1989). *Stable Isotopes in Ecological Research*. Springer Verlag, New York.
- Sawyer C.N., McCarty P.L. and Parkin G.F. (1994). *Chemistry for Environmental Engineering*. (Fourth Edition). McGraw-Hill, New York.
- Schmid M., Twachtmann U., Klein M., Strous M., Juretschko S., Jetten M., Metzger J. W., Schleifer K.H., Wagner M.(2000). Molecular evidence for genus level diversity of bacteria capable of catalyzing anaerobic ammonium oxidation. *Systematic and Applied Microbiology*, **23**, 93-106.
- Schmidt I., Sliemers O., Schmid M., Cirpus I., Strous M., Bock E., Kuenen J. G., Jetten M. S. M. (2002). Aerobic and anaerobic ammonia oxidizing bacteria – competitors or natural partners? *FEMS Microbiology Ecology*, **39**, 175-181.
- Schmidt I., Sliemers O., Schmid M., Bock E., Fuerst J., Kuenen J. G., Jetten M. S. M., Strous M. (2003). New concepts of microbiology treatment for the nitrogen removal in wastewater. *FEMS Microbiology Reviews*, **27**, 481-492.
- Seinfeld J.H. and Pandis S.N. (1998). *Atmospheric Chemistry: From Air Pollution to Climate Change*. John Wiley & Sons, USA.
- Shiklomanov, I.A. 1997. *Comprehensive Assessment of the Freshwater Resources of the World: Assessment of Water Resources and Water Availability in the World*. World Meteorological Organization and Stockholm Environment Institute, Stockholm, Sweden.
- Shiklomanov I. A. (1998). *Water World Resources: A new appraisal and assessment for the 21st Century*. UNESCO, Paris.

- Shilton, A. (1996). Ammonia volatilization from a piggery pond. *Water Science and Technology* **33** (7), 183-189.
- Shilton A. and Harrison J. (2003). Development of guidelines for improved hydraulic design of waste stabilisation ponds. *Water Science and Technology*, **48**(2), 173-180.
- Silva, S. A. (1982). On the treatment of domestic sewage in waste stabilization ponds in N. E. Brazil. PhD Thesis, University of Dundee, Dundee.
- Silva S. A., de Oliveira R, Soares J., Mara, D. D. (1995). Nitrogen removal in pond systems with different configurations and geometries. *Water Science and Technology*, **31**(12), 321-330.
- Sliemers A. O., Derwort N., Campos Gomez J. L., Strous M., Kuenen J. G., Jetten M. S. M. (2002). Completely autotrophic nitrogen removal over nitrite in one single reactor. *Water Research*, **36**(10), 2475-2482.
- Soares, J., Silva, S. A., de Oliveira, R., Araújo, A. L. C., Mara, D. D. and Pearson, H. W. (1996). Ammonia removal in a pilot-scale waste stabilization pond complex in Northeast Brazil. *Water Science and Technology* **33** (7), 165-171.
- Somiya and Fujii, 1984. Material balances of organics and nutrients in an oxidation pond. *Water Research*, **18**(3), 325-333.
- Strang, T.J. and Wareham, D.G. (2005). Nitrogen removal in a small waste stabilization pond containing rock filters. *Journal of Environmental Engineering and Science*, **4**(6), 451-460.
- Stratton F. E. (1968). Ammonia nitrogen losses from streams. *Journal of the Sanitary Engineering Division – ASCE*, December, SA6, 1085-1092.
- Stratton F. E. (1969). Nitrogen losses from alkaline water impoundments. *Journal of the Sanitary Engineering Division – ASCE*, April, SA2, 223-231.
- Strous M., Fuerst J. A., Kramer E. H., Logemann S., Muyzer G., van de Pas-Schoonen K. T., Webb R., Kuenen J. G., Jetten M. S. (1999). Missing lithotroph identified as new planctomycete. *Nature*, **400**(6743), 403-405.
- Strous M., Van Gerven E., Kuenen J. G., Jetten, M. (1997). Effects of aerobic and microaerobic conditions on anaerobic ammonium-oxidizing (Anammox) sludge. *Applied and Environmental Microbiology*, **63**, 2446-2448.
- Third K. A., Sliemers A. O., Kuenen J.G., Jetten M.S.M. (2001). The CANON system (Completely autotrophic nitrogen-removal over nitrite) under ammonium limitation: Interaction and competition between three groups of bacteria. *Systematic and Applied Microbiology*, **24**(4), 588-596.
- Thirumurthi D. (1969). Design Principles of Waste Stabilization Ponds. *Journal of the Sanitary Engineering Division, American Society of Civil Engineers*, **96**(SA2), 311-330.
- Throbäck I. N., Enwall K., Jarvis Å., Hallin S. 2004. Reassessing PCR primers targeting *nirS*, *nirK* and *nosZ* genes for community surveys of denitrifying bacteria with DGGE. *FEMS Microbiology Ecology*, **49**, 401-417
- Treusch A. H., Leininger S., Kletzin A., Schuster S. C., Klenk, H, Schleper, C. (2005). Novel genes for nitrite reductase and Amo-related proteins indicate a role of uncultivated mesophilic crenarchaeota in nitrogen cycling. *Environmental Microbiology*, **7**(12), 1985-1995.
- Troussellier M., Legendre P., Baleux B. (1986). Modelling the evolution of bacterial entities in an eutrophic ecosystem (sewage lagoons). *Microbial Ecology*, **12**, 355-379.
- UN-Water, 2006. *Water a Share Responsibility: The United Nations World Water Development Report 2*. UNESCO, Paris and Berghahn Books, New York.
- UNECE – United Nations Economic Commission for Europe and EMEP – Co-operative programme for monitoring and evaluation of long range transmission of air pollutants in Europe (2005). Activity data and emission database WebDab 2005. URL:<http://webdab.emep.int/> [6 July 2005].
- UNHSP – United Nations Human Settlements Programme (2001). *The State of the World's Cities Report 2001*. UN-Habitat, Nairobi.
- U.S. Census Bureau (2008). Total Midyear Population for the World: 1950-2050. URL: <http://www.census.gov/ipc/www/idb/worldpop.html> [21 March 2008].
- USEPA – U.S. Environmental Protection Agency (1977a). *Performance evaluation of existing lagoons-Peterborough, New Hampshire*. EPA-600/2-77-085. USEPA, Municipal Environmental Research Laboratory, Cincinnati, OH.
- USEPA – U.S. Environmental Protection Agency (1977b). *Performance evaluation of an existing lagoon system at Eudora, Kansas*. EPA/600/2-77/167, USEPA, Municipal Environmental Research Laboratory, Cincinnati, OH.

- USEPA – U.S. Environmental Protection Agency (1977c). *Performance evaluation of an existing seven cell lagoon system*. EPA-600/2-77-086. USEPA, Municipal Environmental Research Laboratory, Cincinnati, OH.
- USEPA – U.S. Environmental Protection Agency (1977d). *Performance evaluation of Kilmichael lagoon*. EPA-600/2-77-109. USEPA, Municipal Environmental Research Laboratory, Cincinnati, OH.
- USEPA – U.S. Environmental Protection Agency (1983). *Design Manual: Municipal Wastewater Stabilization Ponds*. EPA/625/1-93-015. Office of Research and Development and Office of Water. Washington, DC.
- USEPA – U.S. Environmental Protection Agency (1993). *Manual of Nitrogen Control*. EPA/625/R-93/010. Office of Research and Development and Office of Water. Washington, DC.
- USEPA – U.S. Environmental Protection Agency (2002). *Wastewater Technology Fact Sheet: Facultative Lagoons*. EPA/832/F-02-014. Office of Water.
URL:<http://www.epa.gov/owm/mtb/faclagon.pdf> [17 May 2008].
- van de Graaf, A. A., de Bruin, P., Robertson, L. A., Jetten M. S. M., Kuenen, J. G. (1997). Metabolic pathway of anaerobic ammonium oxidation on basis of ¹⁵N-studies in a fluidized bed reactor. *Microbiology*, **143**, 2415-2421.
- von Sperling, M. (1999). Performance evaluation and mathematical modelling of coliform die-off in tropical and subtropical waste stabilisation ponds. *Water Research*, **33**(6), 1435–1448.
- Walmsley N. and Shilton A. (2005). Solids and organics. In: *Pond Treatment Technology*, A. Shilton (ed.), IWA, London.
- Wang Q, Garrity G. M., Tiedje J. M., Cole J. R. (2007). Naïve bayesian classifier for rapid assignment of rRNA sequences into the new bacterial taxonomy. *Appl Environ. Microbiol.* **73**(16), 5261–5267.
- Wehner J. F. and Wilhelm R. H. (1956). Boundary conditions of flow reactor. *Chemical Engineering Science*, **6**(2), 89-93.
- WHO – World Health Organization (2006). *Guidelines for the safe use of wastewater, excreta and greywater*. Volume 2: Wastewater use in agriculture. World Health Organization, France.
- WHO – World Health Organization (2006). *Guidelines for drinking-water quality*. World Health Organization, 3rd edition. First addendum to 3rd Edition, Volume 1: Recommendations. Geneva, 417-420.
- Wilson, J. F., Jr, Cobb, E. D., Kilpatrick, F. A. (1986). *Fluorometric procedures for dye tracing: U.S. Geological Survey Techniques of Water Resources Investigations*, Book 3, Chapter A12. U.S. Geological Survey, Washington D.C.
- Yildiz Ö, Kalthoff C., Raunser S., Kühlbrandt W. (2007). Structure of GlnK1 with bound effectors indicates regulatory mechanism for ammonia uptake. *The EMBO Journal*, **26**, 589-599.
- Zhang M., Xu J., Xie P. (2008). Nitrogen dynamics in large shallow eutrophic Lake Chaohu, China. *Environmental Geology*, **55**(1), 1-8.
- Zimmo O. R., van der Steen N.P., Gijzen H.J. (2003). Comparison of ammonia volatilisation rates in algae and duckweed-based waste stabilisation ponds treating domestic wastewater. *Water Research*, **37**, 4587–4594.
- Zimmo O. R., van der Steen N. P. and Gijzen H. J. (2004). Quantification of nitrification and denitrification rates in algae and duckweed based wastewater treatment systems. *Environmental Technology*, **25**(3), 273-282.