Hydro-environmental Technologies Publications, Reports, and Presentations

- March, P., P. Jacobson, "Industry Experience with Power Generation Options for Environmental Flows," *Proceedings of HydroVision International 2016*, Tulsa, Oklahoma: PennWell Corporation, July 2016.
- March, P. A., P. Wolff, J. Sykes, and P. Jacobson, "Environmental Optimization of Aerating Turbines: A Case Study," *Proceedings of HydroVision International 2015*, Tulsa, Oklahoma: PennWell Corporation, July 2015.
- March, P. A., and P. Jacobson, "Industry Experience with Aerating Turbines," *Proceedings of HydroVision International 2015*, Tulsa, Oklahoma: PennWell Corporation, July 2015.
- March, P., *Industry Experience with Power Generation Options for Environmental Flows*, Palo Alto, California: Electric Power Research Institute, Report No. 3002003711, December 2014.
- March, P., Assessment of Aerating Turbine Developments and Related Research Needs, Palo Alto, California: Electric Power Research Institute, Report No. 3002001564, December 2013.
- March, P., "Hydraulic and Environmental Performance of Aerating Turbine Technologies," *Proceedings of EPRI/DOE Conference on Environmentally-Enhanced Hydropower Turbines: Technical Papers*, Palo Alto, California: EPRI, Report No. 1024609, December 2011.
- March, P. A., *Hydropower Technology Roundup Report: Technology Update on Aerating Turbines*, Palo Alto, California: Electric Power Research Institute, Report No. 1017966, December 2009.
- Foust, J. M., R. K. Fisher, P. M. Thompson, M. M. Ratliff, and P. A. March, "Integrating Turbine Rehabilitation and Environmental Technologies: Aerating Runners for Water Quality Enhancement at Osage Plant," *Proceedings of Waterpower XVI*, Tulsa, Oklahoma: PennWell Publications, July 2009.
- March, P. A., "Supplement to Volume 1: Turbine Performance and Air Admission Tests, Osage Plant Units 1 and 7," Nashville, Tennessee: Hydro Performance Processes, June 2009.
- Key, T., and P. A. March, "Examining Hydro's Future Role," *International Water Power & Dam Construction*, July 2008.
- March, P. A., and C. Vansant, *Hydropower Technology Roundup Report Hydropower in a Carbon-Constrained Future: Opportunities and Challenge*, Palo Alto, California: Electric Power Research Institute, Report No. 1014294, March 2008.
- Almquist, C. W., and P. A. March, "Turbine Performance and Air Admission Tests, Osage Plant Units 3 and 6," Nashville, Tennessee: Principia Research Corporation and Hydro Performance Processes Inc., Revision B, March 2006.
- March, P. A., "Balancing Energy, Environment, and Economics: Lessons Learned from TVA's Hydropower Improvement Programs," DOE Hydropower Program Review Meeting, Oak Ridge National Laboratory, February 2004.

- March, P. A., R. K. Fisher, and V. G. Hobbs, "Water and Energy Infrastructure: Meeting Environmental Challenges for a Sustainable Water and Energy Future," USACE 2003 Infrastructure Systems Conference, Las Vegas, Nevada, May 2003.
- March, P. A. "Method and apparatus for monitoring hydroelectric facility maintenance and environmental costs," U. S. Patent No. 6,490,506, December 2, 2002.
- March, P. A., "The Tennessee Valley Authority: Reflections on Origins and Experiences in Integrated Resource Management," Forum on Water for the Americas in the 21st Century, Subtheme C1 (Watersheds the Basis for Water Management), Mexico City, Mexico, October 10, 2002.
- Fisher, R. K., and P. A. March, "Control system for enhancing fish survivability in a hydroelectric power generation installation," U. S. Patent No. 6,357,389, March 19, 2002.
- March, P. A., "Knowledge Management System for Water Resources Optimizes Energy and Environment," *Proceedings of the Fourth Inter-American Dialogue on Water Management*, Paraná, Brazil, September 2001.
- March, P. A., "Information and Knowledge Management Systems Balance Economical Power Production and Environmental Responsibility," Keynote Address, International Association for Hydraulic Engineering and Research IAHR 2000, Charlotte, North Carolina, August 2000.
- March, P. A., "Knowledge Management System Promotes Beneficial Paradigm Shifts in Operation, Maintenance, and Environmental Performance of Hydroelectric Power Plants," *Proceedings of HydroInformatics* 2000, Iowa City, Iowa, July 2000.
- March, P. A., and R. K. Fisher, "It's Not Easy Being Green: Environmental Technologies Enhance Conventional Hydropower's Role in Sustainable Development," *Annual Review of Energy and the Environment*, Volume 24, December 1999.
- Fisher, R. K., G. Francke, P. A. March, D. Mathur, and F. Sotiropoulos, "Increasing Fish Survival Prospects at Hydro Plants," *International Journal of Hydropower & Dams*, October 1999.
- Hopping, P. N., P. A. March, and P. J. Wolff, "Justifying, Specifying, and Verifying Performance of Aerating Turbines," *Proceedings of Waterpower 99*, New York, New York: American Society of Civil Engineers, August 1999.
- Ventikos, Y., F. Sotiropoulos, R. Fisher, P. March, and P. Hopping, "A CFD Framework for Environmentally-Friendly Hydroturbines," *Proceedings of Waterpower 99*, Las Vegas, Nevada, July 1999.
- Ventikos, Y., F. Sotiropoulos, P. A. March, and P. N. Hopping, "A Lagrangian/Eulerian Method for Simulating Dissolved Oxygen Transfer in Autoventing Hydroturbines," *Proceedings of the European Community on Computational Methods in Applied Sciences (ECCOMAS 98)*, Athens, Greece, September 1998.
- Fisher, R. K., P. A. March, D. Mathur, F. Sotiropoulos, and G. F. Franke, "Innovative Environmental Technologies Brighten Hydro's Future," *Proceedings of the XIX IAHR Symposium on Hydraulic Machinery and Cavitation*, World Scientific Publishing Co.: Singapore, September 1998, Keynote

- Address, pp. 2-18. (This paper was also presented at the NHA Environmental Roundtable, Washington, DC, April 1998, and at the Voith Hydro Experts Congress, Heidenheim, Germany, May 1998.)
- March, P. A., "Virtual Bubbles and Real Improvements: Aeration Technologies Improve Water Quality," National Hydropower Association Annual Meeting, Washington, DC, April 1998.
- Hopping, P., P. March, T. Brice, and J. Cybularz, "Update on Development of Auto-Venting Turbine Technology," *Proceedings of Waterpower 97*, August 1997.
- Hopping, P., P. March, and R. Fisher, "Status and Vision of Turbine Aeration," *Proceedings of 27th IAHR Congress*, August 1997.
- March, P. A., "Hydropower's Future as a Renewable Resource," President's Committee of Advisors on Science and Technology, Renewable Energy Task Force, Washington, DC, July 1997.
- Franke, G. F., D. R. Webb, R. K. Fisher, D. Mathur, P. N. Hopping, P. A. March, M. Headrick, I. Laczo, Y. Ventikos, and F. Sotiropoulos, "Development of Environmentally Advanced Hydropower Turbine System Design Concepts," York, Pennsylvania: Voith Hydro, Inc., Report No. 2677-0141, U.S. Department of Energy Contract DE-AC07-96ID13382, July 1997.
- March, P. A., and R. K. Fisher, "TVA's Auto-Venting Turbines Increase Downstream Aeration," *Hydro Review*, September 1996.
- Hopping, P., P. March, T. Brice, and J. Cybularz, "Plans for Testing and Evaluating the New Autoventing Turbines at TVA's Norris Hydro Project," North American Water Congress, Anaheim, CA, June 1996.
- March, P. A., "Aeration Performance of TVA's Self-Aerating Hydroturbines," National Hydropower Association Annual Meeting, Washington, DC, March 1996.
- March, P.A., "Options for Water Quality Improvements in Hydropower Releases," National Hydropower Association Annual Meeting, Washington, DC, April 1995.
- March, P.A., T.A. Brice, M.H. Mobley, and J.L. Cybularz, "Turbines for Solving the DO Dilemma," *Hydro Review*, March 1992, pp. 30-36.
- Almquist, C.W., P.N. Hopping, and P.A. March, "Energy Losses Due to Air Admission in Hydroturbines," *Proceedings of the ASCE National Hydraulic Engineering Conference*, Nashville, TN, August 1991.
- March, P.A., J. Cybularz, and B.G. Ragsdale, "Model Tests for the Evaluation of Auto-Venting Hydroturbines," *Proceedings of the ASCE National Hydraulic Engineering Conference*, Nashville, TN, August 1991.
- Jones, R.K., and P.A. March, "Efficiency and Cavitation Effects of Hydroturbine Venting," *Proceedings of the ASCE National Hydraulic Engineering Conference*, Nashville, TN, August 1991.
- March, P.A., and W.R. Waldrop, "Technology Development for Auto-Venting Turbines," Second International Symposium on Gas Transfer, University of Minnesota, Minneapolis, MN, September 1990.

March, P.A., and B.G. Ragsdale, "Rehabilitation to Achieve Multiple Objectives: Progress in the Development of Auto-Venting Hydroturbines," *Proceedings of the EPRI Hydro Operation and Maintenance Workshop*, Boston, Massachusetts, September 1989.

Harshbarger, E. D., P. A. March, and S. Vigander, "The Effect of Hydro Turbine Air Venting on Generating Efficiency, Dissolved Oxygen Uptake, and Turbine Vibrations," *Proceedings of the Symposium on Hydraulic Machinery in the Energy-Related Industries*, Stirling, Scotland, August 1984.

March, P.A., and E.D. Harshbarger, "Preliminary Analysis of Turbine Venting," Norris, Tennessee: Tennessee Valley Authority, Engineering Laboratory Report No. WR28-1-1-102, August 1980.

March, P.A., "Experimental Evaluation of Oxygen Transfer Rates for Bubble Diffusers," Alden Research Laboratory Report No. 101-78/M372F, September 1978.

Contact information:

Patrick A. March
President and Principal Consultant
Hydro Performance Processes Inc. (EIN 20-1959788)
98 Steeplechase Dr., Doylestown, Pennsylvania 18901-5717
pamarch@hydroppi.com; pamarch@gmail.com

Cell Phone: 1.865.603.0175