

Curriculum Vitae

1. NAME: Kenneth Ian Ashley

Not Relevant

Not Relevant

2.

EDUCATION

INSTITUTION

DATE

DEGREE

Univ. of B.C.

1993-2002

Ph.D.
Civil/Environmental Engineering

Univ. of B.C.

1984-89

M.A.Sc.
Civil/Environmental Engineering

Univ. of B.C.

1976-81

M.Sc.
Zoology/Aquatic Ecology

Univ. of B.C.

1972-76

B.Sc.
Zoology/Aquatic Ecology

3.

EMPLOYMENT HISTORY

<u>YEAR</u>	<u>DUTIES</u>	<u>EMPLOYER</u>
2010	Instructor, Ecological Restoration	BC Institute of Technology
2009	Environmental Engineer	Self Employed
2008	Manager, Special Projects Living Rivers	Prov. of B.C. Ministry of Environment
2005 - 2007	Environmental management of GVRD water and wastewater systems	Greater Vancouver Regional District
1991-2005	Whole-lake fertilization research, marine derived nutrients, experimental river fertilization research, hypolimnetic aeration	Prov. of B.C. MoE Fisheries
1987-1990	Whole-lake fertilization research, gas transfer research	Prov. of B.C. MoE Fisheries
1985-1986	Artificial circulation research, Broodstock lake surveys	Prov. of B.C. MoE Fisheries
1979-1984	Artificial circulation research	Prov. of B.C., MoE Fisheries
1977-1978	Hypolimnetic aeration research	Prov. of B.C. Fisheries Branch
1976	Experimental limnology (mesocosm experiments)	Dr. Bill Neill I.A.R.E./U.B.C.

4.

RESEARCH INTERESTS

Ecosystem level experimental limnology (e.g., hypolimnetic aeration, artificial circulation, lake and river fertilization), ecosystem monitoring, water quality guidelines and objectives, public health engineering

Habitat restoration

Freshwater ecology of salmonids

Climate change

Environmental engineering (e.g., gas transfer mechanisms, physical limnology, circulation processes in small lakes, design of artificial circulation equipment)

5.

PUBLICATIONS**Primary Journals**

1. Ashley, K.I. 1983. Hypolimnetic aeration of a naturally eutrophic lake. Can. J. Fish. Aquat. Sci. 40:1343-1359.

2. Ashley, K.I. 1984. Hypolimnetic aeration and zooplankton depth distribution. Can. J. Fish. Aquat. Sci. 41:1856-1857.

3. Ashley, K.I. 1985. Hypolimnetic aeration: practical design and application. Water Research 19:735-740.

4. Ashley, K.I., S. Hay and G. Scholten. 1987. Hypolimnetic aeration: field test of the empirical sizing method. Water Research 21:223-227.

5. Ashley, K.I. 1988. Hypolimnetic aeration research in British Columbia. Verh. Internat. Verein. Limnol. 23:215-219.

6. Ashley, K.I. and K.J. Hall. 1990. Factors influencing oxygen transfer in hypolimnetic aeration systems. Verh. Internat. Verein. Limnol. 24:179-183.

7. Ashley, K.I., D.S. Mavinic and K.J. Hall. 1990. Effects of orifice size and surface conditions on oxygen transfer in a diffused aeration system. Environ. Tech. Let. 11:609-618.

8. Ashley, K.I., K.J. Hall and D.S. Mavinic. 1991. Factors influencing oxygen transfer in fine pore diffused aeration systems. *Water Research* 25:1479-1486.
9. Ashley, K.I., K.J. Hall and D.S. Mavinic. 1992. Comparative study of oxygen transfer in coarse bubble diffused aeration. *Water Research* 26:1289-1295.
10. Soltero R.A., L.M. Sexton, **K.I. Ashley** and K.O. McKee. 1994. Partial and full lift hypolimnetic aeration of Medical Lake, WA to improve water quality. *Water Research* 28:2297-2308.
11. Lawrence, G.A., **K.I. Ashley**, N. Yonemitsu and J.R. Ellis. 1995. Natural dispersion and the fertilization of small lakes. *Limnology and Oceanography* 40:1519-1526.
12. Ashley, K.I., L.C. Thompson, D.C. Lasenby, L. McEachern, K.E. Smokorowski and D. Sebastian. 1997. Restoration of an Interior Lake Ecosystem: The Kootenay Lake Experiment. *Water Qual. Res. J. Canada* (32):295-323.
13. Rae, R., F.R. Pick, P.B. Hamilton and **K.I. Ashley**. 1997. Effects of fertilization on phytoplankton in Kootenay Lake, British Columbia. *Lake and Reservoir Management* 13(1):57-66.
14. Johnston, N.T., M.D. Stamford, **K.I. Ashley** and K. Tsumura. 1999. Responses of rainbow trout (*Oncorhynchus mykiss*) and their prey to inorganic fertilization of an oligotrophic montane lake. *Can. J. Fish. Aquat. Sci.* 56:1011-1025.
15. Sterling, M.S., **K.I. Ashley** and A.B. Bautista. 2000. Slow-release fertilizer for rehabilitating oligotrophic streams: a physical characterization. *Water Quality Res. J. Canada* 35(1): 73-94.
16. Perrin, C.J., **K.I. Ashley** and G.A. Larkin. 2000. Effect of drawdown on ammonium and ion concentrations in a coastal mountain reservoir. *Water Quality Res. J. Canada* 35: 231-244.
17. Ashley, K.I. 2000. Recent advances in hypolimnetic aeration design. *Verh. Internat. Verein. Limnol.* 27:2256-2260.
18. Perrin, C.J., M.L. Rosenau, T.B. Stables and **K.I. Ashley**. 2006. Restoration of a montane reservoir fishery using biomanipulation and nutrient addition. *North Amer. J. Fish. Management* 26:391-407.
19. Anders, P.J. and **K.I. Ashley**. 2007. The Clear-water Paradox of Aquatic Ecosystem Restoration. *Fisheries* 32 (3):125-128.

20. Matzinger, A., R. Pieters, **K. I. Ashley**, G. A. Lawrence, and A. Wüest. 2007. Effects of impoundment on nutrient availability and productivity in lakes. *Limnology and Oceanography* 52(6):2629-2640.

21. Ashley, K.I., D.S. Mavinic and K.J. Hall. 2008. Oxygenation Performance of a Laboratory Scale Speece Cone Hypolimnetic Aerator: Preliminary Assessment. *Canadian Journal of Civil Engineering* 35:663-675.

22. Ashley, K.I., D.S. Mavinic and K.J. Hall. 2009. Effect of orifice diameter, depth of air injection and air flow rate on oxygen transfer in a pilot-scale, full-lift, hypolimnetic aerator. *Canadian Journal of Civil Engineering* 36:137-147.

Peer Reviewed Technical Publications and Books

1. Ashley, K.I. and P.A. Slaney. 1997. Accelerating recovery of stream, river and pond productivity by low-level nutrient replacement (Chapter 13). **In:** Fish Habitat Rehabilitation Procedures. P.A. Slaney and D. Zaldokas (eds.). Province of B.C., Ministry of Environment, Lands and Parks, and Ministry of Forests. Watershed Restoration Technical Circular No. 9: 341p.

2. Ashley, K., L.C. Thompson, D. Sebastian, D.C. Lasenby, K.E. Smokorowski and H. Andrusak. 1999. Restoration of kokanee salmon in Kootenay Lake, a large intermontane lake, by controlled seasonal additions of nutrients. pp. 127-170. **In:** Aquatic Restoration in Canada. T. Murphy and M. Munawar (eds.). Ecovision World Monograph Series, Backhuys Publishers, Leiden, Netherlands.

3. Ashley, K. and R. Nordin. 1999. Lake aeration in British Columbia: Applications and Experiences. pp. 87-108. **In:** Aquatic Restoration in Canada. T. Murphy and M. Munawar (eds.). Ecovision World Monograph Series, Backhuys Publishers, Leiden, Netherlands.

4. Ashley, K.I. 2006. Salmon in the 21st Century: Energy, Triage and Choices. **In:** Salmon 2100. R. Lackey, D. Hach and S. Duncan (eds.). Salmon 2100: The Future of Wild Pacific Salmon American Fisheries Society, Symposium 34, Bethesda, Maryland.

Peer Reviewed Workshop Proceedings

1. Slaney, P.A. and **K.I. Ashley**. 1999. Case studies of whole-stream fertilization in British Columbia. **In:** Restoration of Fisheries by Enrichment of Aquatic Ecosystems. J.G. Stockner and G. Milbrink (eds.). International Workshop at Uppsala University, Sweden, March 30-April 1, 1998.

2. Ashley, K.I. 1999. Review of provincial lake fertilization experiments in British Columbia, Canada. **In:** Restoration of Fisheries by Enrichment of Aquatic Ecosystems. J.G. Stockner and G. Milbrink (eds.). International Workshop at Uppsala University, Sweden, March 30-April 1, 1998.

Peer Reviewed Special Symposia Proceedings

1. Ashley, K.I., D.S. Mavinic and K.J. Hall. 1990. Oxygen transfer in full lift hypolimnetic aeration systems. pp. 648-659. **In:** Air-Water Mass Transfer, Second International Symposium. U.S. Army Waterways Experiment Station/ASCE, Sept. 11-14, 1990, Minneapolis, Mn.
2. Ashley, K.I., K. Tsumura and B.M. Chan. 1992. Fisheries Management of Winterkill Lakes in Southern Interior British Columbia. pp. 287-297. **In:** Aquatic Ecosystems in Semi-Arid Regions: Implications for Resource Management, R.D. Robarts and M.L. Bothwell (eds.). N.H.R.I. Symposium Series 7, Environment Canada, Saskatoon, Saskatchewan, Canada.
3. Stockner, J.G. and **K.I. Ashley**. 2003. Salmon nutrients: Closing the circle. Pages 3-16 **In:** J.G. Stockner, editor. Nutrients in salmonid ecosystems: sustaining production and biodiversity. American Fisheries Society, Symposium 34, Bethesda, Maryland.
4. G.A. Wilson, **K.I. Ashley**, R.W. Land and P.A. Slaney. 2003. Experimental enrichment of two oligotrophic rivers in south coastal British Columbia. Pages 149-176. **In:** J.G. Stockner, editor. Nutrients in salmonid ecosystems: sustaining production and biodiversity. American Fisheries Society, Symposium 34, Bethesda, Maryland.
5. Pieters, R., S. Harris, L.C. Thompson, L. Vidmanic, M. Roushorne, G. Lawrence, J.G. Stockner, H. Andrusak, **K.I. Ashley**, B. Lindsay, K. Hall and D. Lombard. 2003. Restoration of kokanee salmon in the Arrow Lakes reservoir, British Columbia: preliminary results of a fertilization experiment. Pages 177-196. **In:** J.G. Stockner, editor. Nutrients in salmonid ecosystems: sustaining production and biodiversity. American Fisheries Society, Symposium 34, Bethesda, Maryland.
6. M.S. Stirling and **K.I. Ashley**. 2003. Evaluations of slow release fertilizer for rehabilitating oligotrophic streams. Pages 237-244. **In:** J.G. Stockner, editor. Nutrients in salmonid ecosystems: sustaining production and biodiversity. American Fisheries Society, Symposium 34, Bethesda, Maryland.
7. K.I. Ashley and J.G. Stockner. 2003. Protocol for applying limiting nutrients to inland waters. Pages 245-260. **In:** J.G. Stockner, editor. Nutrients in salmonid ecosystems: sustaining production and biodiversity. American Fisheries Society, Symposium 34, Bethesda, Maryland.

Peer Reviewed Conference Proceedings

1. Ashley, K.I. 1982. Hypolimnetic aeration and functional components of the lake ecosystem: phytoplankton and zooplankton effects. pp. 31-40. **In:** Proceedings of the North American Lake Management Society. Vancouver, British Columbia. U.S. EPA 440/5-83-001.

2. Ward, P.R.B., W.G. Dunford and **K.I. Ashley**. 1986. Ice control in lakes by photovoltaics powered water circulation. pp. 41-46. **In:** Proceedings of the Renewable Energy Conference, Winnipeg, Manitoba.
3. Ward, P.R.B., E. Cousins, W.G. Dunford and **K.I. Ashley**. 1989. A directly driven PV pump for Water aeration. **In:** Proceedings of the 15th Annual Conference of the Solar Energy Society of Canada, June 19-21, 1989, Penticton, British Columbia.
4. Lawrence, G.L., **K.I. Ashley** and J.R. Ellis. 1990. Natural dispersion and the fertilization of a small lake. pp. v32-v41. **In:** Engineering in our Environment, Proc. 1990 Annual Conference CSCE. Vol. 5, Hydrotechnical. May 16-19, 1990, Hamilton, Ontario.
5. Ashley, K.I. 1991. Fisheries Management Strategies in Limnological Regions of British Columbia. **In:** Proceedings of the Third International Week of Limnology, August 26-30, 1991, Morelia, Mexico.
6. Slaney, P., **K. Ashley**, C. Wightman, R. Ptolemy and D. Zaldakos. 1994. Low-level fertilization as a habitat management option for nutrient deficient trout streams in British Columbia. **In:** Proceedings of the 9th International Trout Stream Habitat Improvement Workshop, Sept. 6-9, 1994, Calgary, AB. Published by Trout Unlimited Canada. 23 p.
7. Ashley, K.I. 1994. Overview of the Kootenay Lake Fertilization Experiment. pp. 123-127. **In:** Proceedings from the Technical Sessions, Canada/United States Technical Workshop on the Upper Columbia River Basin: An International Dialogue. November 15-16, 1994, Spokane, Washington.
8. Rae, R., F.R. Pick, P.B. Hamilton and **K.I. Ashley**. 1994. The effects of fertilization on phytoplankton community structure in Kootenay Lake, British Columbia: Implications for fish production. pp. 135-139. **In:** Proceedings from the Technical Sessions, Canada/United States Technical Workshop on the Upper Columbia River Basin: An International Dialogue. November 15-16, 1994, Spokane, Washington.
9. Hall, K.J., T.P.D. Murphy, M. Mawhinney and **K.I. Ashley**. 1994. Iron treatment for eutrophication control in Black Lake, British Columbia. pp. 114-117. **In:** Lake and Reservoir Management 9(1), 13th International Symposium of the North American lake Management Society. November 29-December 4, 1993, Seattle, Washington.
10. Ward, P.R.B., H.A. Yassien, **K.I. Ashley**, C.W. Koning, W.G. Dunford and L. Welder. 1997. Fertilizer injection in rivers for rehabilitation of salmon runs. IAHA XXVIIth Congress, San Francisco, Ca.
11. Ward, P.R.B., H.A. Yassien, **K.I. Ashley**. 1998. Okanagan water management, streamflow variability and the relationship to world climate (El Nino) fluctuations. pp. 30-37. **In:** Canadian

Water Resources Association 51st Annual Conference, June 10-12, 1998, Victoria, British Columbia.

12. Yassien, H.A., P.R.B. Ward and **K.I. Ashley**. 1998. Restoration of a flow regime on the Cheakamus River, British Columbia. pp. 160-166. **In:** Canadian Water Resources Association 51st Annual Conference, June 10-12, 1998. Victoria, British Columbia.

13. Koning, C.W., **K.I. Ashley**, P.A. Slaney and A.J. Paul. 1998. Stream fertilization as a fisheries mitigation technique for perturbed oligotrophic trout streams in British Columbia. pp. 109-120. **In:** M.K. Brewin and D.M.A. Monita (tech. coords.) Forest-fish conference: land management practices affecting aquatic ecosystems. Proc. Forest-Fish Conference, May 1-4, 1996, Calgary, Alberta.. Nat. Resour. Can., Canadian Forest Service, Northern Forest Centre, Edmonton, Alberta. Information Report NOR-X-356.

14. Ashley, K., D. Mavinic and F. Koch. 2009. International Conference on Nutrient Recovery from Wastewater Streams. IWA Publishing, Alliance House, London. ISBN 1843392321.

Non-Peer Reviewed Technical Reports

1. Murphy, T.P., K.J. Hall, **K.I. Ashley**, A. Murdoch, M. Mawhinney and H. Fricker. 1985. In-lake precipitation of phosphorus by lime treatment. National Water Research Institute, Contribution Series No. 85-167, Burlington, Ontario.

2. Ashley, K.I., E. Parkinson and A. Tautz. 1986. Broodstock and research lake opportunities in southern interior British Columbia. Fisheries Project Report No. RD 7. Ministry of Environment, Province of British Columbia.

3. Hume, J.M.B, K. Tsumura and **K.I. Ashley**. 1986. A preliminary comparison between Premier and Duncan rainbow trout stocks in a lake containing redbside shiners. Fisheries Project Report. No. RD 1. Ministry of Environment, Province of British Columbia.

4. Ashley, K.I. 1987. Artificial circulation in British Columbia: Review and Evaluation. Fisheries Technical Report No. 78. Fisheries Branch, Ministry of Environment, Province of British Columbia.

5. Ashley, K.I. and J.M.B. Hume. 1987. Habitat Conservation Fund Progress Report (1987-1988): Salsbury Lake Fertilization. Fisheries Project Report No. RD 15. Ministry of Environment, Province of British Columbia.

6. Ashley, K.I. 1988. A preliminary economic assessment of the Salsbury Lake fertilization project. Fisheries Project Report No. RD 16. Ministry of Environment, Province of British Columbia.

7. Nordin, R.N., G.H. Scholten and **K.I. Ashley**. 1988. Effects of hypolimnetic aeration on the water quality of St. Mary Lake, Saltspring Island. Water Management Branch, B.C.
8. Ashley, K.I. and N.T. Johnston. 1989. Habitat Conservation Fund Progress Report (1988-1989): Salsbury Lake Fertilization. Fisheries Project Report No. RD 19. Ministry of Environment, Province of British Columbia.
9. Ashley, K.I. 1989. The use of chlorine as a possible fish toxicant. Fisheries Project Report No. RD 20. Ministry of Environment, Province of British Columbia.
10. Johnston, N.T., **K.I. Ashley** and K. Tsumura. 1991. Survival, growth and yield of rainbow trout (*Oncorhynchus mykiss*) in the Twin Lakes, Southwestern British Columbia, prior to lake fertilization. Fisheries Project Report No. RD29, Ministry of Environment, Province of British Columbia.
11. Ashley, K.I. and L. Thompson. 1993. Kootenay Lake Fertilization Experiment Year 1 (1992/93) Report. Fisheries Project Report No. RD 32. Ministry of Environment, Province of British Columbia.
12. Slaney, P.A., D. Zaldakos, **K.I. Ashley** and D. Rimmer. 1993. Development of a trophy fishery on the Adam River by enhancing habitat productivity:pre-fertilization progress 1992-93. Fisheries Project Report No. RD 36. Ministry of Environment, Lands and Parks, Province of British Columbia.
13. Toth, B.M., P.A. Slaney, T.I. Godin and **K.I. Ashley**. 1993 Development of a Premier River Fishery: Big Silver Pre-Fertilization Progress 1993. Fisheries Project Report No. RD 37. Ministry of Environment, Lands and Parks, Province of British Columbia.
14. Ashley, K.I., L.C. Thompson, L. Haywood-Farmer, R. Rae, F.R. Pick, P.B. Hamilton, D.C. Lasenby, K.E. Smokorowski and L. McEachern. 1994. Kootenay Lake Fertilization Experiment Year 2 (1993/94) Report. Fisheries Project Report No. RD 41. Ministry of Environment, Province of British Columbia.
15. Koning, C.W., **K.I. Ashley**, P.A. Slaney, R.W. Land and P.W. Davidson. 1995. Development of a Premier Northern River Fishery: Mesilinka River Pre-Fertilization Progress 1992-93. Fisheries Project Report No. RD 46. Ministry of Environment, Province of British Columbia.
16. Ashley, K. and B. Shepherd. 1995. Okanagan Lake Workshop Report and Action Plan. Fisheries Project Report No. RD 45. Ministry of Environment, Province of British Columbia.
17. Paul, A.J., C.W. Koning, **K.I. Ashley**, P.A. Slaney, P.W. Davidson and R.W. Land. 1995. Development of a Premier Northern River Fishery: Mesilinka River, The First Year of Fertilization

(1994). Fisheries Project Report No. RD 50. Ministry of Environment, Province of British Columbia.

18. Ashley, K.I., L.C. Thompson, L. Haywood-Farmer, Jing-Rong Yang, F.R. Pick, P.B. Hamilton, D.C. Lasenby, K.E. Smokorowski, L. McEachern, D. Sebastian and G. Scholten. 1996. Kootenay Lake Fertilization Experiment Year 3 (1994/95) Report. Fisheries Project Report No. RD 49. Ministry of Environment, Province of British Columbia.

19. Toth, B., **K. Ashley**, G. Wilson, C.K. Koning, T. Godin, P. Slaney and R.W. Land. 1996a. Development of a Premier River Fishery: Big Silver Creek Fertilization Experiment, Year One (1994) of Low-Level Inorganic Nutrient Addition. Fisheries Project Report No. RD 48. Ministry of Environment, Lands and Parks, Province of British Columbia.

20. Toth, B., **K. Ashley**, G. Wilson, C.K. Koning, P. Slaney and R.W. Land. 1996b. Development of a Premier River Fishery: Big Silver Creek Fertilization Experiment, Year Two (1995) of Low-Level Inorganic Nutrient Addition. Fisheries Project Report No. RD 56. Ministry of Environment, Lands and Parks, Province of British Columbia.

21. Mouldey-Ewing, S.E. and K.I. Ashley. 1996. Development and testing of slow release fertilizer for restoring salmonid habitat: 1995 progress report. Fisheries Project Report No. RD 54. Ministry of Environment, Lands and Parks, Province of British Columbia.

22. Toth, B., **K. Ashley**, G. Wilson, C.W. Koning, P.Slaney, D. Rimmer and B. Land. 1997a. Development of a Resident Trout Fishery on the Adam River through Increased Habitat Productivity: Year One (1994) of Low-Level Inorganic Nutrient Addition. Fisheries Project Report No. RD 47. Ministry of Environment, Lands and Parks, Province of British Columbia.

23. Toth, B., **K. Ashley**, G. Wilson, C.W. Koning, P.Slaney, D. Rimmer and B. Land. 1997b. Development of a Resident Trout Fishery on the Adam River through Increased Habitat Productivity: Year Two (1995) of Low-Level Inorganic Nutrient Addition. Fisheries Project Report No. RD 57. Ministry of Environment, Lands and Parks, Province of British Columbia.

24. Larkin, G.A., P.R.B. Ward, **K.I. Ashley**, P.A. Slaney, C.W. Koning and S.E. Mouldey. 1997. Recent advances in liquid fertilizer injection technology for stream and river restoration. Watershed Restoration Project Report No. 5. Ministry of Environment, Lands and Parks and Ministry of Forests, Province of British Columbia.

25. Ashley, K.I., L.C. Thompson, P. Warburton, Jing-Rong Yang, F.R. Pick, P.B. Hamilton, D.C. Lasenby, K.E. Smokorowski, L. McEachern, D. Sebastian and G. Scholten. 1997. Kootenay Lake Fertilization Experiment Year 4 (1995/96) Report. Fisheries Project Report No. RD 58. Ministry of Environment, Province of British Columbia.

26. Wilson, G., **K. Ashley**, S. Mouldey-Ewing, P.Slaney, S. Jennings and B. Land. 1997. Development of a Resident Trout Fishery on the Adam River through Increased Habitat Productivity: Year Three (1996) of Low-Level Inorganic Nutrient Addition. Fisheries Project Report No. RD 63. Ministry of Environment, Lands and Parks, Province of British Columbia.
27. Mouldey-Ewing, S.E. and K.I. Ashley. 1998. Development and testing of slow release fertilizer for restoring salmonid habitat: 1996 progress report. Watershed Restoration Project Report No. RD 9. Ministry of Environment, Lands and Parks and Ministry of Forests, Province of British Columbia.
28. Ashley, K.I., B. Shepherd, D. Sebastian, L. Thompson, L. Vidmanic, P. Ward, H. Yassien, L. McEachern, R. Nordin, D. Lasenby, J. Quirt, J.D. Whall, P. Dill, E. Taylor, S. Pollard, C. Wong, J. den Dulk and G. Scholten. 1998. Okanagan Lake Action Plan Year 1 (1996-97) and Year 2 (1997-98) Report. Fisheries Project Report No. RD 73. Ministry of Fisheries, Province of British Columbia.
29. Mouldey-Ewing, S.E., **K.I. Ashley** and G. Wilson. 1998. Development and testing of slow release fertilizer for restoring salmonid habitat: 1997 progress report. Watershed Restoration Project Report No. RD 10. Ministry of Environment, Lands and Parks and Ministry of Forests, Province of British Columbia.
30. Paul, A.J., G. Wilson, W. Koning, **K. Ashley**, P. Slaney, P. Davidson and R.W. Land. 1998. Development of a Premier Northern River Fishery: Mesilinka River, The Second Year of Fertilization (1995). Fisheries Project Report No. RD 62. Ministry of Environment, Lands and Parks, Province of British Columbia.
31. Wilson, G., **K. Ashley**, E. Standen, S. Mouldey, S. Jennings, R. Land and P. Slaney. 1998. Development of a Premier River Fishery: Big Silver Creek Fertilization Experiment, Year Three (1996) of Low-Level Inorganic Nutrient Addition. Fisheries Project Report No. RD 64. Ministry of Environment, Lands and Parks, Province of British Columbia.
32. Pieters, R., L.C. Thompson, L. Vidmanic, S. Pond, J. Stockner, P. Hamblin, M. Young, **K. Ashley**, B. Lindsay, G. Lawrence, D. Sebastian, G. Scholten and D.L. Lombard. 1998. Arrow Reservoir Limnology and Trophic Status – Year 1 (1997/98) Report. Fisheries Project Report No. RD 67. Ministry of Environment, Lands and Parks, Province of British Columbia.
33. Wilson, G., G.A. Larkin, **K.I. Ashley**, P.A. Slaney, R.W. Land, S. Biancolin and P. Davidson. 1999. Development of a Premier Northern River Fishery: Mesilinka River, The Third Year of Fertilization (1996). Fisheries Project Report No. RD 66. Ministry of Fisheries, Province of British Columbia.

34. Larkin, G.A., G. Wilson, **K.I. Ashley**, P.A. Slaney, R.W. Land and S. Biancolin. 1999. Development of a Premier Northern River Fishery: Mesilinka River, The Fourth Year of Fertilization (1997). Fisheries Project Report No. RD 70. Ministry of Fisheries, Province of British Columbia.
35. Wilson, G., **K. Ashley**, S. Mouldey Ewing, P. Slaney and R. Land. 1999. Development of a Premier River Fishery: The Big Silver Creek Fertilization Experiment, 1993-97. Final Project Report. Fisheries Project Report No. RD 69. Ministry of Fisheries, Province of British Columbia.
36. Wilson, G., **K. Ashley**, S. Mouldey Ewing, P. Slaney and R.W. Land. 1999. Development of a Resident Trout Fishery on the Adam River through Increased Habitat Productivity: Final Report of the 1992-97 Project. Fisheries Project Report No. RD 63. Ministry of Environment, Lands and Parks, Province of British Columbia.
37. K. Ashley, I. McGregor, B. Shepherd, D. Sebastian, S. Matthews, L. Vidmanic, P. Ward, H. Yassien, L. McEachern, H. Andrusak, D. Lasenby, J. Quirt, J. Whall, E. Taylor, A. Kupier, P.M. Troffe, C. Wong, G. Scholten, M. Zimmerman, P. Epp, V. Jensen and R. Finnegan. 1999. Okanagan Lake Action Plan Year 3 (1998) Report. Fisheries Project Report No. RD 78. Ministry of Fisheries, Province of British Columbia.
38. Ashley, K.I., L.C. Thompson, D. Lombard, Jing-Rong Yang, F.R. Pick, P.B. Hamilton, D.C. Lasenby, K.E. Smokorowski, D. Sebastian and G. Scholten. 1999. Kootenay Lake Fertilization Experiment Year 5 (1996/97) Report. Fisheries Project Report No. RD 65. Ministry of Environment, Province of British Columbia.
39. Pieters, R., L.C. Thompson, L. Vidmanic, M. Roushorne, J. Stockner, K. Hall, M. Young, S. Pond, M. Derham, **K. Ashley**, B. Lindsay, G. Lawrence, D. Sebastian, G. Scholten, F. McLaughlin, A. Wuest, A. Matzinger and E. Carmack. 1999. Arrow Reservoir Limnology and Trophic Status – Year 2 (1998/99) Report. Fisheries Project Report No. RD 72. Ministry of Environment, Lands and Parks, Province of British Columbia.
40. Wilson, G., R.W. Land, **K. Ashley**, E. Standen, T. Berkhout, G. Scholten and D. Sebastian. 1999. The Alouette Reservoir Fertilization Experiment: Pre-fertilization (1998) Report. Fisheries Project Report No. RD 79. Ministry of Fisheries, Province of British Columbia.
41. Pieters, R., L.C. Thompson, L. Vidmanic, M. Roushorne, J. Stockner, K. Hall, M. Young, M. Derham, S. Pond, **K. Ashley**, B. Lindsay, G. Lawrence, H. Andrusak, D. Sebastian and G. Scholten. 2000. Arrow Reservoir Fertilization Experiment – Year 1 (1999/2000) Report. Fisheries Project Report No. RD 82. Ministry of Environment, Lands and Parks, Province of British Columbia.

42. H. Andrusak, D. Sebastian, I. McGregor, S. Matthews, D. Smith, **K. Ashley**, S. Pollard, G. Scholten, J. Stockner, P. Ward, R. Kirk, D. Lasenby, J. Webster, J. Whall, G. Wilson and H. Yassien. 2000. Okanagan Lake Action Plan Year 4 (1999) Report. Fisheries Project Report No. RD 83. Ministry of Fisheries, Province of British Columbia.
43. Wilson, G., R.W. Land, **K. Ashley**, T. Berkhout, F. Pick, M. McCusker, G. Scholten and D. Sebastian. 2000. The Alouette Reservoir Fertilization Experiment: Year Two (1999) Report. Fisheries Project Report No. RD 85. Ministry of Fisheries, Province of British Columbia.
44. H. Andrusak, S. Matthews, I. McGregor, **K. Ashley**, G. Wilson, L. Vidmanic, J. Stockner, K. Hall, D. Sebastian, G. Scholten, G. Andrusak, J. Sawada, D. Cassidy and J. Webster. 2001. Okanagan Lake Action Plan Year 5 (2000) Report. Fisheries Project Report No. RD 89. Ministry of Fisheries, Province of British Columbia.
45. Wright, M.E., **K.I. Ashley**, R. Lindsay, R.J. Hammond, F.R. Pick, L.M. Ley, P.B. Hamilton, D.C. Lasenby, L.J. McEachern, M. Duffy, L.C. Thompson, D. Miller, D.L. Lombard, D. Sebastian, G. Scholten and M. Young. 2001. Kootenay Lake Fertilization Experiment Year 6 (1997/98) Fisheries Project Report No. RD 97. Ministry of Water, Land and Air Protection, Province of British Columbia.
46. Andrusak, H., S. Matthews, I. McGregor, **K. Ashley**, G. Wilson, L. Vidmanic, J. Stockner, D. Sebastian, G. Scholten, P. Woodruff, D. Cassidy, J. Webster, K. Rood and A. Kay. 2002. Okanagan Lake Action Plan Year 6 (2001) Report. Fisheries Project Report No. RD 96. Ministry of Fisheries, Province of British Columbia.
47. Wright, M.E., **K.I. Ashley**, R. Lindsay, R.J. Hammond, F.R. Pick, L.M. Ley, P.B. Hamilton, D.C. Lasenby, L.J. McEachern, M. Duffy, J.D. Whall, L.C. Thompson, D. Miller, L. Vidmanic, D. Sebastian, G. Scholten and M. Young. 2002. Kootenay Lake Fertilization Experiment Year 7 (1998/99) Fisheries Project Report No. RD 98. Ministry of Water, Land and Air Protection, Province of British Columbia.
48. McCusker, M., **K. Ashley**, and P. Caverhill. 2002. Management plan for restoring nutrients to Lower Mainland streams: Georgia Basin Steelhead Recovery Project, 2000-2001. Fisheries Project Report No. RD 94. Ministry of Fisheries, Province of British Columbia.
49. McCusker, M., **K. Ashley**, C. Wightman and L. Hansen. 2002. Management plan for restoring nutrients to Vancouver Island streams: Georgia Basin Steelhead Recovery Project, 2000-2001. Fisheries Project Report No. RD 95. Ministry of Fisheries, Province of British Columbia.
50. Wilson, G., **K. Ashley**, M. McCusker, R. Land, J. Stockner, G. Scholten, D. Dolecki and D. Sebastian. 2003. The Alouette Reservoir Fertilization Project: Year 2000 and 2001 Experiment,

Whole Reservoir Fertilization. Fisheries Project Report No. RD 99. Ministry of Water, Land and Air Protection, Province of British Columbia.

51. Wright, M.E., **K.I. Ashley**, R. Lindsay, R.J. Hammond, F.R. Pick, L.M. Ley, P.B. Hamilton, L.C. Thompson, L. Vidmanic, H. Andrusak, D. Sebastian, G. Scholten, M. Young and D. Miller. 2002. Kootenay Lake Fertilization Experiment Year 8 (1999/00) Fisheries Project Report No. RD 102. Ministry of Water, Land and Air Protection, Province of British Columbia.

52. Wright, M.E., **K.I. Ashley**, H. Andrusak, H. Manson, R. Lindsay, R.J. Hammond, F.R. Pick, L.M. Ley, P.B. Hamilton, S.L. Harris, L.C. Thompson, L. Vidmanic, D. Sebastian, G. Scholten, M. Young and D. Miller. 2002. Kootenay Lake Fertilization Experiment Year 9 (2000/01) Fisheries Project Report No. RD 105. Ministry of Water, Land and Air Protection, Province of British Columbia.

53. Andrusak, H., S. Matthews, **K. Ashley**, K. Hall, M. Brett, B. Oldham and G. Lawrence. 2003. Okanagan Lake Action Plan Nitrogen:Phosphorus Ratio Adjustment Project Review Workshop. Fisheries Project Report No. RD 104. Ministry of Water, Land and Air Protection, Province of British Columbia.

54. Andrusak, H., S. Matthews, I. McGregor, **K. Ashley**, G. Wilson, L. Vidmanic, J. Stockner, D. Sebastian, G. Scholten, P. Woodruff, D. Cassidy, J. Webster, A. Wilson, M. Gaboury, P. Slaney, G. W.K. Oldham, B. Janz and J. Mitchell. 2003. Okanagan Lake Action Plan Year 7 (2002) Report. Lawrence, Fisheries Project Report No. RD 106. Ministry of Water, Land and Air Protection, Province of British Columbia.

55. Pieters, R., L.C. Thompson, L. Vidmanic, S. Harris, J. Stockner, H. Andrusak, M. Young, **K. Ashley**, B. Lindsay, G. Lawrence, K. Hall, A. Eskooch, D. Sebastian, G. Scholten and P.E. Woodriff. 2003. Arrow Reservoir Fertilization Experiment – Year 2 (2000/2001) Report. Fisheries Project Report No. RD 87. Ministry of Water, Land and Air Protection, Province of British Columbia.

56. Pieters, R., L. Vidmanic, S. Harris, J. Stockner, H. Andrusak, M. Young, **K. Ashley**, B. Lindsay, G. Lawrence, K. Hall, A. Eskooch, D. Sebastian, G. Scholten and P.E. Woodriff. 2003. Arrow Reservoir Fertilization Experiment – Year 3 (2001/2002) Report. Fisheries Project Report No. RD 103. Ministry of Water, Land and Air Protection, Province of British Columbia.

57. Andrusak, H., S. Matthews, I. McGregor, **K. Ashley**, R. Rae, A. Wilson, , D. Sebastian, G. Scholten, P. Woodruff, L. Vidmanic, J. Stockner, G. Wilson, B. Jantz, J. Webster, H. Wright, C. Walters and J. Korman. 2004. Okanagan Lake Action Plan Year 8 (2003) Report. Fisheries Project Report No. RD 108. Ministry of Water, Land and Air Protection, Province of British Columbia.

58. Andrusak, H., S. Matthews, I. McGregor, **K. Ashley**, R. Rae, A. Wilson, J.

- Webster, G. Andrusak, L. Vidmanic, J. Stockner, D. Sebastian, G. Scholten, P. Woodruff, B. Jantz, D. Bennett, H. Wright, R. Withler, S. Harris. 2005. Okanagan Lake Action Plan Year 9 (2004). Report. Fisheries Project Report No. RD 111. Ministry of Environment, Province of British Columbia.
59. Schindler, E.U., R. Pieters, L. Vidmanic, H. Andrusak, D. Sebastian, G. Scholten, P. Woodruff, J. Stockner, B. Lindsay and **K. I. Ashley**. 2006. Arrow Lakes Reservoir Fertilization Experiment, Years 4 and 5 (2002 and 2003). Fisheries Project Report RD 113. Ministry of Environment, Province of British Columbia.
60. Schindler, E.U., **K. I. Ashley**, R. Rae, L. Vidmanic, , H. Andrusak, D. Sebastian, G. Scholten, P. Woodruff, F. Pick, L. M. Ley, and P. Hamilton.. 2006. Kootenay Lake Fertilization Experiment Years 11 and 12 (2002 and 2003). Fisheries Project Report No. RD 114. Ministry of Environment, Province of British Columbia.
61. Schindler, E.U., R. Rae, **K. I. Ashley**, L. Vidmanic, D. Sebastian, H. Andrusak, G. Scholten, P. Woodruff, J. Stockner, F. Pick, L. M. Ley, P. Hamilton, G.F. Andrusak and L. Fleck. 2007. Kootenay Lake Fertilization Experiment, Year 13 (North Arm) and Year 1 (South Arm) (2004) Report. Fisheries Project Report No. RD 117, Ministry of Environment, Province of British Columbia.
62. Schindler, E.U., L. Vidmanic, D. Sebastian, H. Andrusak, G. Scholten, P. Woodruff, J. Stockner, **K. I. Ashley** and G.F. Andrusak. 2007. Arrow Lakes Reservoir Fertilization Experiment, Years 6 and 7 (2004 and 2005) Report. Fisheries Project Report RD 121. Ministry of Environment, Province of British Columbia.
63. Schindler, E.U., H. Andrusak, **K.I. Ashley**, G.F. Andrusak, L. Vidmanic, D. Sebastian, G. Scholten, P. Woodruff, J. Stockner, F. Pick, L.M. Ley and P.B. Hamilton. 2007. Kootenay Lake Fertilization Experiment, Year 14 (North Arm) and Year 2 (South Arm) (2005) Report. Fisheries Project Report No. RD 122. Ministry of Environment, Province of British Columbia.
64. Ashley, K.I. and C. Helbing. 2008. Environmental wastewater research fund for British Columbia. Watermark 17:38-39.
65. Schindler, E.U., D. Sebastian, L. Vidmanic, H. Andrusak, J. Stockner, M. Bassett and **K.I. Ashley**. 2009. Arrow Lakes Reservoir Fertilization Experiment. Fisheries project Report No. RD 125. Fisheries Science and Allocation, Ministry of Environment, Province of British Columbia.

66. Schindler, E.U., D. Sebastian, G.F. Andrusak, H. Andrusak, L. Vidmanic, J. Stockner, F. Pick, L.M. Ley, P.B. Hamilton. M. Bassett and **K.I. Ashley**. 2009. Kootenay Lake Fertilization Experiment, Year 15 (North Arm) and Year 3 (South Arm) (2006) Report. Fisheries Project Report No. RD 126. Fisheries Science and Allocation, Ministry of Environment, Province of British Columbia.

Theses

1. Ashley, K.I. 1981. Effects of hypolimnetic aeration on functional components of the lake ecosystem. M.Sc. thesis, Zoology Dept., University of British Columbia. 120 pp.
2. Ashley, K.I. 1989. Factors influencing gas transfer in diffused aeration systems and their application to hypolimnetic aeration. M.A.Sc. thesis, Civil Engineering Dept., University of British Columbia. 115 pp.
3. Ashley, K.I. 2002. Comparative analysis of oxygen transfer in full lift and Downflow Bubble Contact hypolimnetic aerators. Ph.D. thesis, Civil Engineering Dept., University of British Columbia. 298 pp.

6. **AWARDS and SIGNIFICANT ACHIEVEMENTS**

1992 – Short listed to 100 top candidates in Canada for the **Canadian Astronaut Program, Mission Payload/Mission Specialist**.

1997 - **Murray A. Newman Award for Excellence in Aquatic Science**. Awarded annually by the Vancouver Aquarium Marine Science Centre for Significant Achievement in Aquatic Research.

1999 – **Fisheries Professional of the Year**. Awarded annually by peer nomination in the Ministry of Fisheries, Province of British Columbia.

2001 – **Seth Diamond Award**. Awarded annually by the University of Idaho-Moscow and University of Montana-Missoula for innovative interdisciplinary research in fisheries, wildlife and forestry.

2004 – **25 Year Government Service Award**, presented by Lt. Gov. Iona Campagnola, Victoria, BC.

2007 – **Keynote speaker** at River Restoration Northwest annual conference in Washington State.

2007 – Two **Certificates of Recognition**, by the Policy and Planning Department, Greater Vancouver Regional District

7. **UNIVERSITY APPOINTMENTS**

University of Idaho-Moscow, Moscow, Idaho, USA: Adjunct Professor, Department of Fish, Wildlife and Range Resources. Appointment date: 2002.

University of British Columbia, Vancouver, BC, Canada: Adjunct Professor, Dept. of Civil and Environmental Engineering. Appointment date: 2004.

8. **PROFESSIONAL ASSOCIATIONS**

American Fisheries Society (Certified Fisheries Scientist No. 1968)

Canadian Society of Limnology

International Association for Theoretical and Applied Limnology

9. **COMMITTEES**

1992-1993: Chair, Vancouver Island Hydro-Fisheries Technical Committee

1992-1993: Technical Advisor, Lower Mainland Region Hydro-Fisheries Technical Committee

1992-1993: Technical Advisor, Southern Interior Region Hydro-Fisheries Technical Committee

1992-2005: Technical Advisor, Peace-Williston Fish and Wildlife Compensation Program Fisheries Technical Committee

1992-2005: Provincial Scientist, Columbia Basin Fish and Wildlife Compensation Program Fisheries Technical Committee

1994: Provincial Scientist, BC Utilities Commission Kemano Completion Project Technical Team

1995: Provincial Scientist: Kemano Completion Project Classified Technical Review Team

1995-2005: Okanagan Lake Action Plan/Large Lakes Committee

2002-2005: Chair, Habitat Conservation Trust Fund, Fisheries Technical Review Committee

2006: External Advisor, Habitat Conservation Trust Fund, Fisheries Technical Review Committee

2005-2007: Burrard Inlet Environment Action Plan Technical Committee

2005-2007: Fraser River Estuary Management Plan Technical Committee

2008: Chair, External Review Panel for BCIT Degree Program in Ecological Restoration

10. **REFERENCES**

Available on request

28 May 2009