

TABLE OF CONTENTS

	<u>Page</u>
FOREWARD	ii
LIST OF PARTICIPANTS	v
PRESENTATION OF MONOGRAPH ON ICE JAMS	1
Chairman: Dr. K. Davar; University of New Brunswick	
INVITED PRESENTATION: "The Finnish River Project"	15
M. Huokuna, Reiter Ltd., Finland	

SESSION 1 - Hydro-Economics and Environmental Issues

Chairman: W. C. Girling, Manitoba Hydro

1.	T. M. Humes and J. Dublin: A Comparison of 1976 and 1987 Saint John River Ice Jam Flooding with Emphasis on Antecedent Conditions	43
2.	P. S. McCreath, G. K. Bowden and C.D. Sellars: Ice Jam Flood Frequency and Annual Damages at Dawson City on the Yukon River.....	63
3.	D. J. Calkins and B. E. Brockett: Ice Cover Distribution in Vermont and New Hampshire Atlantic Salmon Rearing Streams.....	85
4.	L. Kriwoken and D. Brown: Using Historical Data to Determine Flood Risk from Ice Jams	97
5.	S. Stanley and R. Gerard: Probability Analysis of Historical Ice Jams Flood Data for a Complex Reach: A Case Study	115

SESSION 2 - Ice Processes and Theory

Chairman: Gee Tsang - National Water Research Institute

6. R. E. Perham: Effect of Frazil Ice on a 4.9 x 15.2m Line Array 139
7. Z. C. Sun and H. T. Shen: Field Investigation of Frazil Ice Jam
in Yellow River..... 157
8. J. L. Wuebben: A Laboratory Study of Scour Under an Ice Jam 177
9. J. E. Zufelt: Transverse Velocities and Ice Jamming Potential
in a River Bend..... 193
10. F. E. Parkinson: Ice Jam Development, Release and Surge
Wave Propagation, MacKenzie River at Norman Wells 209

SESSION 3 - Forecasting Breakup and Flooding

**Chairman: Jim Wuebben - Cold Regions Research
and Engineering Laboratory**

11. R. Gerard and G. Flato: Some Thoughts on Breakup and
Ice Jams..... 225
12. N. B. Melcher: Computing Stream Discharge for Periods of Ice
Effect Using Index Stations and Correlation Equations..... 241
13. P. M. Pelletier: Techniques Used by Water Survey of Canada
for Measurement of Streamflow Under Ice Conditions..... 255
14. T. D. Prowse, M. N. Demuth and C. R. Onclin: Pre-Breakup
Changes in River Ice Strength..... 283
15. D. D. Andres: Breakup Prediction of a Non-Regulated River 305
16. S. Sarraf: Statistical Assessment of Ice Jam Formation in
Canadian Rivers..... 327

SESSION 4 - Numerical Modelling

Chairman: R. W. Carson, Acres International Limited

17. S. Petryk: Mathematical Modelling of Ice Jams..... 345
18. J. E. Anderson, L. D. Bungay, S. Beltaos and I. K. Hill: Ice
Related Flooding on Harry's River 369
19. G. Tsang: Development of Mathematical Models for the
Prediction of River Cooling and the Formation of Frazil Ice and
Anchor Ice 393
20. P. R. Plouffe, S. Sarraf and R. Kahawita: Two-Dimensional
Modelling of River Ice Thermal Melting..... 417
21. R. E. Baddour: Ice Control with Thermal and Thermal/Bubbler
Plumes: Line Source Configuration 435