

Short Outline of Readings for Geog. 549

Chapter 1. Introduction - Watersheds and Water: Essential Resources

PART ONE - ENVIRONMENTAL ASPECTS OF WATER RESOURCES

Section I. Physical Hydrology

Chapter 2. History of the Hydrologic Cycle and Water Properties (omitted)

Chapter 3. Atmospheric Water and Global Hydrologic Change (omitted)

Chapter 4. Global Fresh Water (omitted)

Chapter 5. Infiltration, Runoff, and Hydrologic Models

Chapter 6. Concentrated Flow in Channels

Chapter 7. Lakes, Reservoirs, and Wetlands

Chapter 8. Ground-Water Hydrology (omitted)

Section II. Water Quality and Treatment

Chapter 9. Principles of Water Quality

Chapter 10. Non-Point Source Pollution

Chapter 11. Ground-Water Quality (omitted)

Chapter 12. Water Treatment (omitted except definitions of aquatic restoration)

Chapter 13. Aquatic Restoration and Natural Water Treatment

PART TWO -HUMAN ASPECTS OF WATER RESOURCES

Section III. Water-Related Hazards

Chapter 14. The Nature of Water Hazards

Chapter 15. Risk Assessment

Chapter 16. Flood Vulnerability Assessments and Hazard Management

Section IV. Water Supply and Demand

Chapter 17. Water Use

Chapter 18. Economics of Water Resources

Chapter 19. Global Sustainability, Water Scarcity, and Food Security

Section V. Judicial, Legislative, and Administrative Controls on Water

Chapter 20. Water Rights Law

Chapter 21. Environmental Policy and Water Resources Legislation in the USA

Chapter 22. Conclusion - Water Resources Management in the 21st Century

Potential Exercises:

Water budgets

Runoff unit calculations

Delineation of channel networks & divides; manually and automatically

Hydrographs

Field exercises (misc.: color, bulk density, surveying, GPS, etc.)

Field measurement of discharge, stream gauges, and culverts/storm drains

Field measurement of water quality; use of sonde for pH, DO, temp, etc.