

1. Record Nr.	UNINA9910828854303321
Titolo	Wetlands : characteristics and boundaries // Committee on Characterization of Wetlands, Water Science and Technology Board, Board on Environmental Studies and Toxicology, Commission on Geosciences, Environment, and Resources, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, 1995
ISBN	0-309-17679-4 1-280-21111-3 9786610211111 0-309-58722-0 0-585-15881-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (328 p.)
Altri autori (Persone)	LewisWilliam M. <1945->
Disciplina	333.91/8/0973
Soggetti	Wetlands Wetland ecology Wetland conservation - Government policy - United States
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	William M. Lewis, Jr., chair.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Wetlands -- Copyright -- Acknowledgments -- Preface -- Contents -- Executive Summary -- DEFINITIONS, FACTORS, CRITERIA, AND INDICATORS -- WATER -- SUBSTRATE -- VEGETATION -- COMBINATIONS OF INDICATORS FOR WATER, SOIL, AND VEGETATION -- ESPECIALLY CONTROVERSIAL WETLANDS -- REGIONALIZATION -- MAPS, IMAGES, AND MODELING -- REGULATORY PRACTICE -- FUNCTIONAL ASSESSMENT -- GENERAL CONCLUSIONS -- 1 Introduction and Background -- PURPOSES OF THE NRC REPORT -- Identification and Characterization -- Identification of Functions and Values -- Variations -- Relationships of the Three Themes -- PATH TO REGULATION -- CURRENT CONTEXT FOR REGULATION -- 2 Ecology of Wetland Ecosystems -- INTRODUCTION -- THE NATURE OF WETLANDS -- Hydrology as a Driving Force -- Causes of Variation -- Organic Matter -- Natural Disturbance -- Nutrient Transformation -- WETLAND FUNCTIONS -- Relationship to Value -- Unique Functions -- Landscape

Perspective -- Relationship to Biodiversity -- Removal of Nutrients and Sediments -- Wetlands as Hydrologic Features of Watersheds -- NATURE OF BOUNDARIES WITH UPLANDS -- CONCLUSIONS -- RECOMMENDATION -- 3 Wetland Definitions: History and Scientific Basis -- HISTORY OF TERMINOLOGY -- Nineteenth-Century American Legislation -- Swamp and Overflowed Lands Acts -- Wildlife Refuge System -- Rivers and Harbors Act -- New Legal Status -- Water Pollution Control Act Amendments of 1972 -- Judicial Interpretation of the 1972 Statute -- EVOLUTION OF THE REGULATORY DEFINITIONS -- 1956 Fish and Wildlife Service Definition -- 1974 Wetland Inventory Project -- 1975 USACE Proposed Definition -- 1976 FWS Interim Classification -- 1977 USACE Definition -- Clean Water Act of 1977 -- 1979 Cowardin Report -- Riverside Bayview Decision -- FOOD SECURITY ACT -- STATUS OF DEFINITIONS -- 1977 USACE Definition -- 1985 FSA Definition -- 1979 FWS Definition. FRAME OF REFERENCE FOR REGULATORY DEFINITIONS -- Reference Definition -- Terminology: Parameters, Criteria, Indicators -- Criteria and Indicators -- APPLICATION OF DEFINITIONS -- RECOMMENDATIONS -- 4 Wetland Delineation: Past and Current Practice -- INTRODUCTION -- WETLAND DELINEATION: MOTIVATION AND PROCEDURE -- Clean Water Act -- The Food Security Act -- FEDERAL AGENCY MANUALS BEFORE 1989 -- USACE Manual -- EPA Manual -- NFSAM -- Attempts to Revise the Federal Manuals -- COMPARING THE FEDERAL MANUALS -- Hydrology -- Hydrologic Evidence -- Growing Season -- Hydrophytic Vegetation -- Wetland Plant Species -- Determining Prevalence -- Treatment of FAC Species and FACU-Dominated Wetlands -- Hydric Soils -- Special Situations: Disturbed Areas, Problem Areas, Exceptions -- Differences Resulting from Application of the Manuals -- 5 Wetland Characterization: Water, Substrate, and Biota -- INTRODUCTION -- HYDROLOGY -- Nature of Wetland Hydrology -- Need to Evaluate Wetland Hydrology -- Hydrologic Criterion -- Saturation in Relation to Water Table Depth -- Duration of Saturation and the Growing Season -- Effects of Soil Temperature on Development of Anaerobic Conditions -- Definitions of Growing Season and Their Application to Wetlands -- Biological Zero -- Growing Season as Defined by the Frost-Free Period -- Interaction of Duration Threshold with Length of Growing Season -- Resolving the Problem of Growing Season -- Frequency of Saturation -- Critical Depth of Saturation -- Interannual Variation -- Overview of Hydrologic Thresholds -- Direct Methods for Evaluating Hydrology -- Indirect Methods for Evaluating Hydrology -- SOILS -- Concepts of Soil -- Soil-Forming Processes in Wetlands -- Accumulation of Organic Matter -- Development of Anaerobic Conditions -- Redoximorphic Features -- Hydric Soils List -- Use of Hydric Soils in Delineation. Use of Soil Surveys -- Field Indicators of Hydric Soils -- VEGETATION -- Hydrophyte List -- Definition of Hydrophyte -- Development of the Hydrophyte List -- Facultative Species and the Concept of Wetland Ecotypes -- Determining Predominance Of Hydrophytic Vegetation -- Measure of Dominance: The 50% Rule -- Prevalence Index -- Evaluation of Thresholds -- Visible Adaptations as Indicators of Hydrophytic Vegetation -- Treatment of Facultative Species -- Vegetation and Hydrology -- Vegetation and Soil Type -- Use of Vegetation to Set Boundaries -- OTHER INDICATORS OF THE SUBSTRATE AND BIOLOGICAL CRITERIA -- COMBINING THE FACTORS -- Necessity for Three Factors -- Coincidence of Characteristic Hydrology, Soils, and Vegetation -- Modified Approach to Evaluating Evidence -- Primary Indicators -- Hierarchical Approach -- Future Delineation Manuals -- RECOMMENDATIONS -- 6 Especially Controversial Wetlands --

INTRODUCTION -- PERMAFROST WETLANDS -- Relevance of Permafrost to Wetland Formation -- Dynamics of Permafrost Wetlands -- Regulation of Permafrost Wetlands -- RIPARIAN ECOSYSTEMS -- Support of Biodiversity -- Current Regulation of Riparian Ecosystems -- ISOLATED WETLANDS AND HEADWATERS -- ESPECIALLY SHALLOW OR INTERMITTENTLY FLOODED WETLANDS -- AGRICULTURAL WETLANDS -- Functions of Agricultural Wetlands -- Differential Regulation of Agricultural Wetlands -- SITES ALTERED FOR NONAGRICULTURAL PURPOSES -- Types of Alterations -- Identification of Normal Conditions -- Assessment of Altered Lands -- Limitations of assessment Methods for Altered Sites -- TRANSITIONAL ZONES -- RECOMMENDATIONS -- 7 Regionalization -- INTRODUCTION -- HIERARCHY OF REGIONAL VARIATION -- Regional Variation in Hydrology -- Regional Variation of Soils -- Regional Variation of Plants -- Regional Variation in Abundance of Wetlands -- REGIONALIZATION SCHEMES. Regional Classification Systems -- CURRENT APPROACHES -- Regionalization of Federal Agencies -- Regional Lists of Hydrophytes and Soils -- Hydrology and Growing Season -- Regional Applicability of Current Delineation Methods -- ADVANTAGES AND DISADVANTAGES OF REGIONALIZATION -- RESEARCH TO SUPPORT REGIONALIZATION -- Benchmark Wetlands -- Validation of Modeling Experiments -- Field Experiments on the Reliability of Wetland Indicators -- IMPLEMENTATION OF REGIONALIZATION -- RECOMMENDATIONS -- 8 Maps, Images, and Modeling in the Assessment of Wetlands -- INTRODUCTION -- AERIAL PHOTOGRAPHY AND SATELLITE IMAGING -- Detection of Standing Water -- Other Factors -- WETLAND DELINEATION UNDER THE FOOD SECURITY ACT -- Determinations Before 1994 -- Determinations After 1994 -- NWI MAPPING -- GEOGRAPHIC INFORMATION SYSTEMS -- HYDROLOGIC MODELING -- Mathematical Models to Assess Wetland Hydrology -- Types of Mathematical Models -- Model Selection and Application -- Advantages and Disadvantages of Hydrologic Modeling -- QUANTITATIVE ANALYSIS OF BOUNDARIES -- Transect Data for Boundary Determination -- Detection of Boundaries with Image Analysis -- Scientific vs. Legal Boundaries -- RECOMMENDATIONS -- 9 Regulation of Wetlands: Administrative Issues -- INTRODUCTION -- CONSISTENCY AND RELIABILITY OF WETLAND DELINEATIONS -- Multiple Agencies -- Standards for Expertise, Training, and Certification -- Verification of Delineations -- Uniformity and the Exercise of Professional Judgment -- Resource Regulation and Private Rights -- Use of Flow Diagrams and Charts -- CONCLUSIONS -- RECOMMENDATIONS -- 10 Functional Assessment of Wetlands -- INTRODUCTION -- FUNCTION AND VALUES OF WETLANDS -- GENERAL REQUIREMENTS FOR FUNCTIONAL ASSESSMENT -- METHODS OF FUNCTIONAL ASSESSMENT -- FUTURE METHODS OF FUNCTIONAL ASSESSMENT. Assessment Based on Hydrogeomorphic Classification and Reference Wetlands -- Wetland Evaluation Under the National Food Security Act Manual -- Relevance of Hydrologic Factors to Functional Assessment -- RELEVANCE OF WETLAND ASSESSMENT TO 404 PERMIT APPLICATIONS -- USE OF FUNCTIONAL ASSESSMENT IN WATERSHED PLANNING -- Advanced Identification (ADID) -- Special Area Management Plans -- CONCLUSION -- RECOMMENDATIONS -- References -- APPENDIXES -- APPENDIX A Soil Taxonomy -- SOIL NOMENCLATURE 101 -- SOIL MOISTURE REGIME -- AQUIC CONDITIONS -- Elements of Aquic Conditions -- OTHER TERMS RELATED TO SOIL WETNESS -- Natural Drainage Classes -- Soil Inundation -- REFERENCES -- APPENDIX B Case Histories -- CASE HISTORY 1 -- CASE HISTORY 2 -- REFERENCES

-- CASE HISTORY 3 -- References -- CASE HISTORY 4 -- References --
CASE STUDY 5 -- References -- APPENDIX C Glossary -- APPENDIX D
Committee on Wetlands Characterization Biographical Sketches --
Index -- OTHER RECENT REPORTS OF THE WATER SCIENCE AND
TECHNOLOGY BOARD -- OTHER RECENT REPORTS OF THE BOARD ON
ENVIRONMENTAL STUDIES AND TOXICOLOGY.
