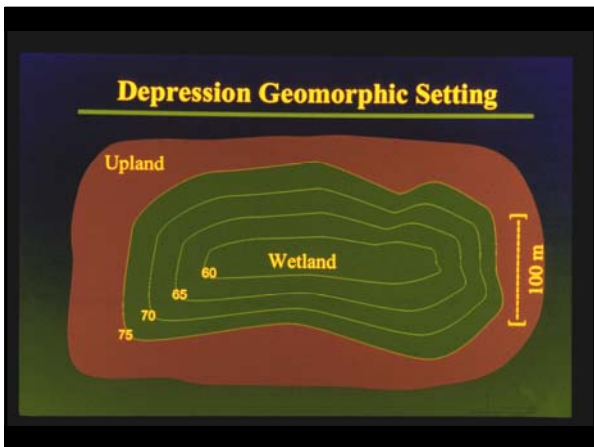


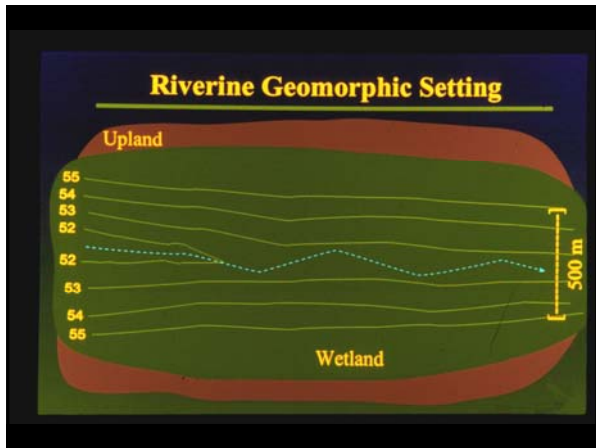


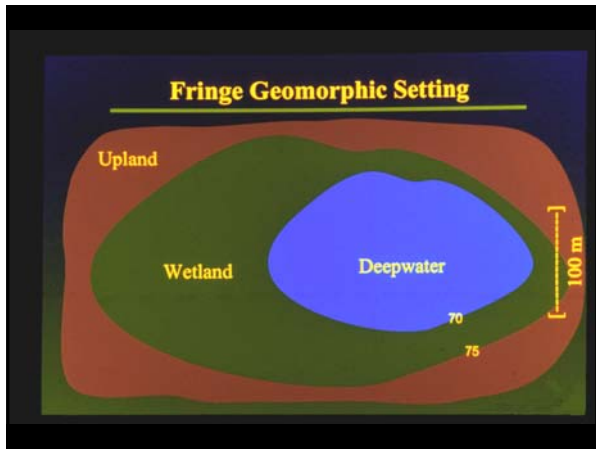


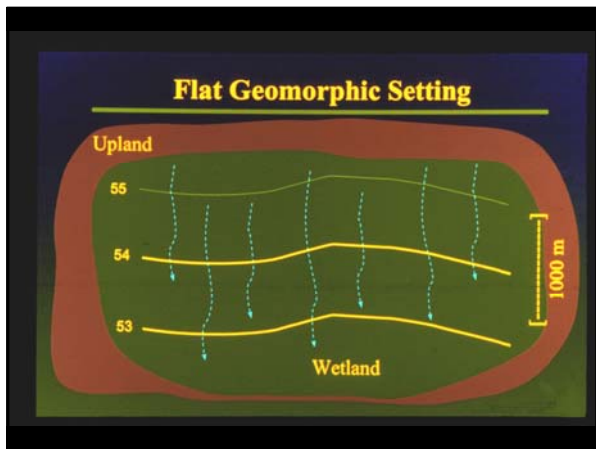
HYDROGEOMORPHIC CLASSIFICATION

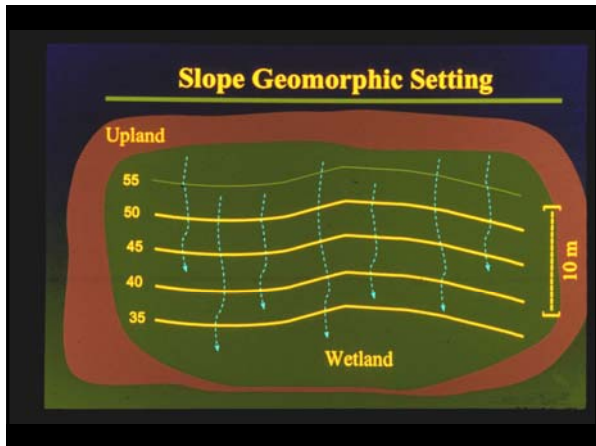
- DEVELOPED BY BRINSON (1993) TO AID IN DEVELOPMENT OF MODELS FOR ASSESSING FUNCTIONS
- WETLANDS CLASSIFIED BASED ON FUNDAMENTAL CHARACTERISTICS
 - LANDSCAPE POSITION
 - HYDROLOGIC SOURCE
 - HYDRODYNAMICS

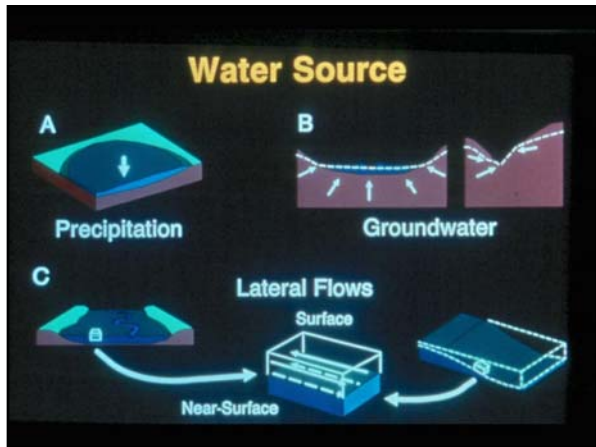


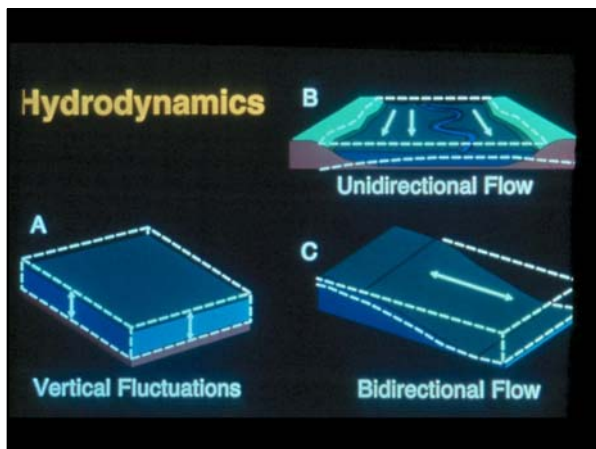








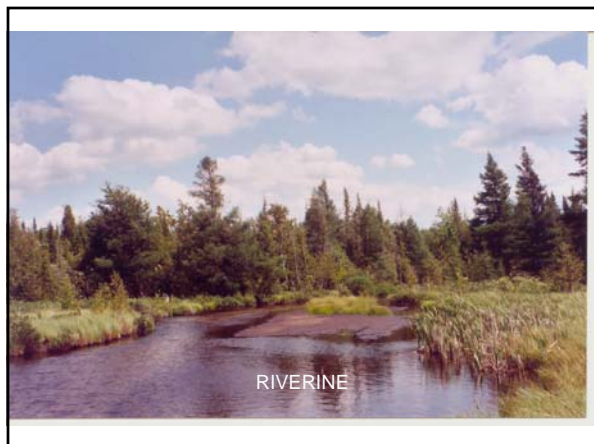


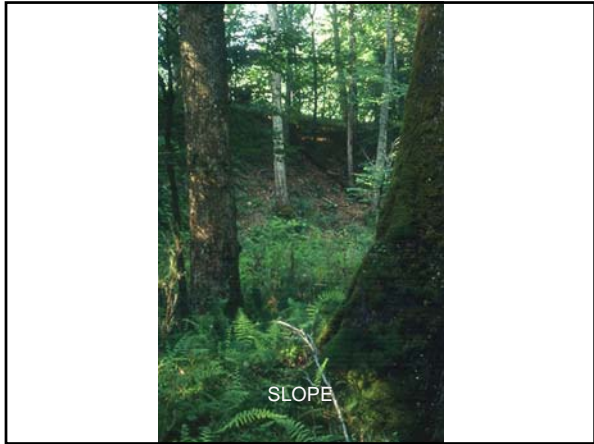


HYDROGEOMORPHIC CLASSES AND DOMINANT WATER SOURCE

- DEPRESSION – GROUNDWATER AND OVERLAND FLOW
- TIDAL FRINGE – OCEAN
- LACUSTRINE FRINGE – LAKE
- SLOPE – GROUNDWATER
- MINERAL SOIL FLATS – PRECIPITATION
- ORGANIC SOIL FLATS – PRECIPITATION
- RIVERINE – OVERBANK FLOW FROM CHANNEL



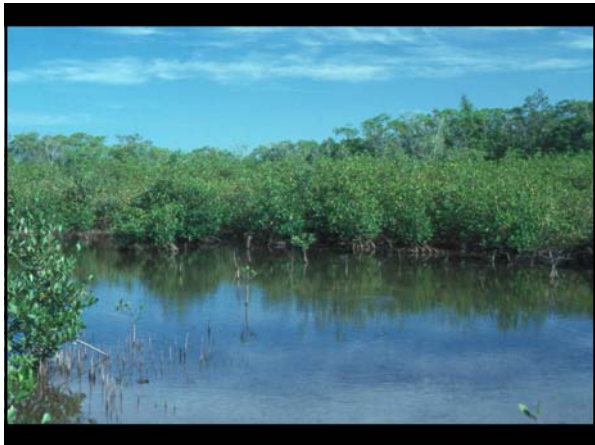




**NAME THE FOLLOWING
CLASSES**













**REGIONAL WETLAND
SUBCLASS**

- OFTEN HAVE VARIATION WITHIN A CLASS
- EXAMPLES WITHIN RIVERINE CLASS
 - HIGH VS LOW GRADIENT
 - COARSE VS FINE SEDIMENTS
 - BACKSWAMPS VS SLOUGHS









WETLAND FUNCTIONS

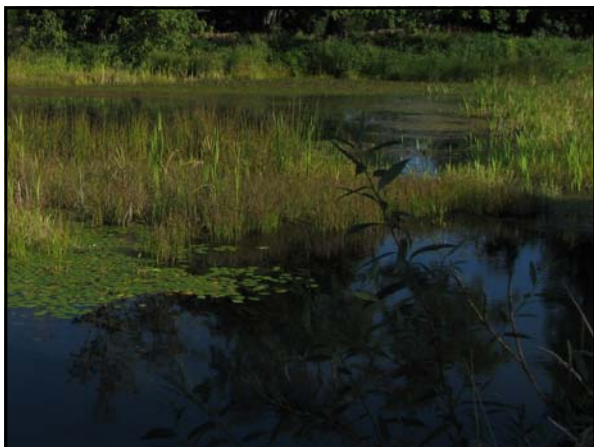
- THE PROCESSES THAT OCCUR WITHIN WETLANDS
 - WATER STORAGE
 - SEDIMENT RETENTION
 - BIOCHEMICAL TRANSFORMATIONS
 - ANIMAL COMMUNITY SUPPORT
 - PLANT COMMUNITY SUPPORT
- MANY OF THESE FUNCTIONS HAVE SIGNIFICANT VALUE TO SOCIETY
- THESE TWO CONCEPTS SHOULD BE VIEWED INDEPENDENTLY

WHY ASSESS WETLAND FUNCTIONS?

- DETERMINE PROJECT IMPACTS
- COMPARE PROJECT ALTERNATIVES
- DETERMINE MITIGATION REQUIREMENTS
- DETERMINE RESTORATION POTENTIAL
- COMPARE MANAGEMENT ALTERNATIVES
- IDENTIFY “LIMITING FACTORS”
- MONITOR PROJECT SUCCESS

CAN YOU NAME SOME FUNCTIONS AND VALUES PERFORMED BY THE FOLLOWING WETLANDS?







**SO, JUST BY CLASSIFYING WETLANDS
WE CAN DETERMINE A GREAT DEAL
ABOUT WHAT FUNCTIONS THEY
PERFORM**

**HGM GUIDEBOOKS: THE
TOOLS FOR ASSESSING
WETLAND FUNCTIONS**

DEFINITIONS

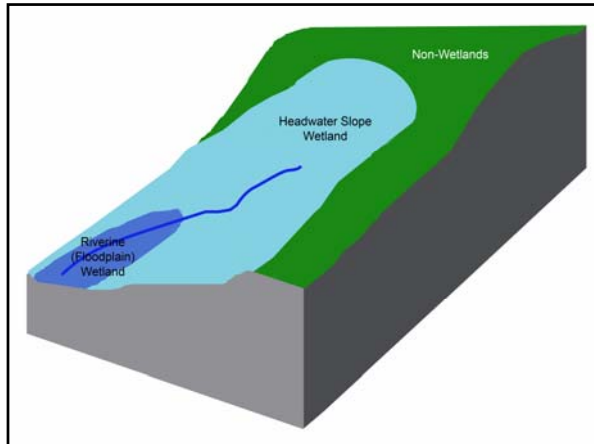
- REFERENCE DOMAIN – GEOGRAPHIC AREA FROM WHICH REFERENCE WETLANDS ARE SELECTED
- REFERENCE WETLANDS – WETLANDS OF ALL CONDITIONS SAMPLED WITHIN THE REFERENCE DOMAIN
- REFERENCE STANDARD WETLANDS – HIGHEST QUALITY WETLANDS WITHIN THE REFERENCE DOMAIN

DEFINITIONS

- FUNCTIONAL CAPACITY – THE MAGNITUDE TO WHICH A WETLAND PERFORMS A FUNCTION
- FUNCTIONAL CAPACITY INDEX – A SCORE (FCI) RANGING FROM 0 – 1.0 THAT INDICATES THE CAPACITY OF A WETLAND TO PERFORM A FUNCTION RELATIVE TO REFERENCE STANDARD WETLANDS
- FUNCTIONAL CAPACITY UNIT – A VALUE (FCU) OBTAINED BY MULTIPLYING THE FCI BY THE SIZE OF THE WETLAND (ACRES)

FUNCTIONAL PROFILE

- FIRST STEP IN DEVELOPMENT OF HGM GUIDEBOOKS
- CHARACTERIZATION OF REGIONAL SUBCLASS IN TERMS OF.....
 - GEOMORPHIC SETTING
 - WATER SOURCES
 - HYDRODYNAMICS
 - SOIL TYPES
 - PLANT AND ANIMAL COMMUNITIES
 - DISTURBANCE





HEADWATER SLOPE WETLANDS IN ALABAMA AND MISSISSIPPI











WETLAND ASSESSMENT MODELS BASED ON HGM

- MATHEMATICAL MODELS THAT DESCRIBE THE RELATIONSHIP BETWEEN THE CHARACTERISTICS OF WETLANDS AND THE ABILITY OF THE WETLANDS TO PERFORM VARIOUS FUNCTIONS
- CONCEPTUALLY SIMILAR TO HABITAT SUITABILITY INDEX MODELS IN HEP – ASSESS HABITAT FOR INDIVIDUAL SPECIES

DEVELOPING ASSESSMENT MODELS

HGM MODELS ARE DESIGNED TO ESTIMATE THE FUNCTIONAL CAPACITY OF A TARGET WETLAND RELATIVE TO REFERENCE STANDARD WETLANDS

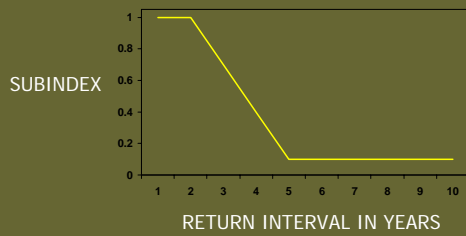
$$FCI = \frac{\text{FUNCTIONAL CAPACITY OF TARGET WETLAND}}{\text{FUNCTIONAL CAPACITY OF REFERENCE STANDARD WETLANDS}}$$

DEVELOPING ASSESSMENT MODELS

- FUNCTIONAL CAPACITY IS DETERMINED BY CHARACTERISTICS OF THE WETLAND AND THE SURROUNDING LANDSCAPE
- THEREFORE, MODEL VARIABLES ARE MEASURABLE CHARACTERISTICS OF THE SITE AND LANDSCAPE:
 - FREQUENCY OR DEPTH OF FLOODING
 - PERCENT SOIL ORGANIC MATTER (COLOR)
 - TREE DENSITY AND SIZE
 - AMOUNT OF LITTER OR WOODY DEBRIS
 - CONDITION OF WATERSHED

MODEL VARIABLES

V_{FREQ} -- FLOOD FREQUENCY



ASSESSMENT MODELS

- VARIABLES AGGREGATED IN EQUATIONS TO PRODUCE AN FCI
- FOR EXAMPLE, RIVERINE WETLAND FUNCTION "TEMPORARY STORAGE OF SURFACE WATER":

$$FCI = \{ (V_{FREQ} \times V_{WIDTH})^{1/2} \times (V_{ROUGH} + V_{SLOPE})/2 \}^{1/2}$$

SUMMARY

- THE HGM CLASSIFICATION SYSTEMS IS BASED ON FUNDAMENTAL ASPECTS OF WETLANDS
- WETLANDS IN THE SAME HGM CLASS/SUBCLASS FUNCTION SIMILARLY
- HGM GUIDEBOOKS ARE WIDELY AVAILABLE FOR USE IN CORPS' PLANNING AND REGULATORY PROGRAMS

Information Sources on the Web

- HGM guidebooks and other resources:
 - <http://el.erdc.usace.army.mil/wetlands/hgmhp.html>
