"My position on wetlands is straightforward: All existing wetlands no matter how small, should be preserved."

-

President George Bush

Sports Afield Magazine

October, 1988

U.S. Army Corps of Engineers
(33 CFR 328.3 [b]) Definition of "Waters of the U.S."

1. "All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

2. All interstate waters including interstate wetlands;

U.S. Army Corps of Engineers
(33 CFR 328.3 [b]) Definition of "Waters of the U.S." – Cont'd. – (2)

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

iii. Which are used or could be used for industrial purpose by industries in interstate commerce;

U.S. Army Corps of Engineers
(33 CFR 328.3 [b]) Definition of "Waters of the U.S." - Cont'd. (3)

4. All impoundments of waters otherwise defined as waters of the United States under the definition;

5. Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;

6. The territorial seas;

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.

8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

U.S. Army Corps of Engineers
Definition of Wetlands (33 CFR 328.3 [b])

"The term 'wetlands' means those areas that are inundated or saturated with surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Natural Resource Conservation Service (National Food Security Act Manual, 1988)

"The term 'wetland,' except when such term is part of the term 'converted wetland' means land that –

(a) has a predominance of hydric soils;

(b) Is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions,

(c) under normal circumstances does support a prevalence of such vegetation.

For the purposes of this Act or any other act, this term shall not include lands in Alaska identified as having high potential for agricultural development which have a predominance of permafrost soils."

U.S. Fish and Wildlife Service (Cowardin et al., 1979)

"Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land support hydrophytes, (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

California State Definitions

California Coastal Commission (14 CCR 13577)

Under the California Code of Regulations providing jurisdiction to the California Coastal Commission, wetlands are defined as:

"...land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deepwater habitats."

California State Definitions

California Department of Fish and Game (CDFG)

CDFG found the U.S. Fish and Wildlife Service (USFWS) wetland definition and classification system to be the most biologically valid. CDFG uses the USFWS definition as a guide in identifying wetlands while conducting on-site inspections for the implementation of its wetlands policy. See *Section I.B.* above for USFWS definition (CDFG, 1994)

Under the California Wildlife Protection Act of 1990 (Fish and Game Code Section 2785[g]):

– **"'Wetlands' means lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools."**

California State Definitions

California Regional Water Quality Control Board

(a) The Water Quality Control Board uses the Corps' definition of wetlands.

(b) Section 13050(e) of the California Water Code* defines 'Waters of the State' as 'any surface water or groundwater, including saline waters, within the boundaries of the state.'

(c) Various Basin Plans define 'surface waters' as consisting of freshwater rivers, streams and lakes, estuaries waters, and coastal waters, and 'groundwater' as 'subsurface water' that occurs beneath the water table in soils and geologic formations that are fully saturated.'

(d) Some Basin Plans further specify that 'wetlands' are waters of the State, and defines them to include 'saltwater marshes, freshwater marshes, open or closed brackish water marshes, mudflats, sandflats, unvegetated seasonally ponded areas, vegetated shallows, sloughs, wet meadows, playa lakes, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands.'

Definitions: "Normal Circumstances"

Original Guidance From Corps Of Engineers 9RGL 82-2) - Normal Circumstances Are…..

"The soils and hydrological conditions that would exist if the vegetation were not altered or removed."

"Cropping or cropping history is not the normal circumstance."

REGULATORY GUIDANCE LETTER No. 86-9
Clarification of "Normal Circumstances"
(33 CFR 323.2(c)

"Many areas of wetlands converted in the past to other uses would, if left unattended for a sufficient period of time, revert to wetlands solely through the devices of nature. However, such natural circumstances are not what is meant by "normal circumstances" in the definition quoted above. "Normal circumstances" are determined on the basis of an area's characteristics and use, at present and in the recent past."

REGULATORY GUIDANCE LETTER No. 86-9
Clarification of "Normal Circumstances"
(33 CFR 323.2(c)

"**As was stated in RGL 82-2, it is our intent under Section 404 to regulate discharges of dredged or fill material into the aquatic system as it exists and not as it may have existed over a record period of time."**

Normal Circumstances Analysis

Administrative Considerations

Did extant conditions come about legally?
- **Legally? (ie. with the benefit of permits and associated public interest review processes)**
- **Via public funding?**

Do extant conditions reflect the public will?

Ecological Considerations

Have extant conditions at the site been in place long enough so that key ecosystem processes are in place and balanced with existing site conditions?

Hydrologic processes
- ***Water Storage, Energy Dissipation***

Biogeochemistry/Soil Processes
- ***Soil structure and morphology***
- ***Elemental cycling***
- ***Carbon Export***

Plant Community Processes
- ***Development of vegetation structure***
- ***Plant reproductive processes & recruitment,***
- ***Community assembly***

The term "adjacent" means:

Bordering, contiguous, or neighboring.

Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."

33 CFR 328.3(c)

The term "high tide line" means:

The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined in the absence of actual data by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

33 CFR 328.3(d)

The term "ordinary high water mark" means"

That line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

33 CFR 328.3(e)

The term "tidal waters" means:

Those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind or other effects.

33 CFR 328.3(f)

Limits of Jurisdiction (33 CFR 328.4)

A. Territorial Seas:

The limit of jurisdiction in the Territorial Seas is measured from the baseline in a seaward direction a distance of three nautical miles.

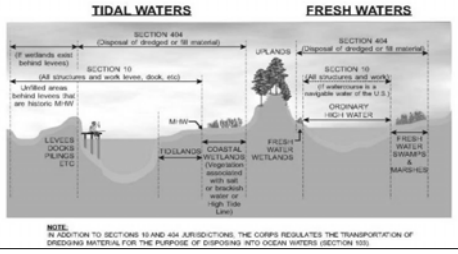
B. Tidal Waters Of the United States:

The landward limits of jurisdiction in tidal waters:
(1) Extends to the high tide line, or
(2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

C. Non-Tidal Waters Of The United States:

The limits of jurisdiction in non-tidal waters is:
(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
(3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetland

Waters of the US Regulated by the Corps Regulatory Program



RIVERS & HARBORS ACT

- **Section 10**
- **All work in navigable waters including permits for dredging & filling**
- **Ebb & flow of tide – from 3 miles out, landward to MHW (or MHHW).**

CLEAN WATER ACT

- **Section 404**
- **Permit for <u>discharge</u> of fill only**
- **Ebb & flow of tide – from 3 miles out, landward, past MHW (or MHHW) &/or to edge of adjacent wetland**

PRACTICABLE vs. PRACTICAL

What is *practicable* is capable of being done.

Note: In the context of the public interest revioew process and the 404(b)(1) Guidelines, EPA interprets this to mean without cost:benefit analyses. The Corps considers cost:benefit analyses in their decision making processes.

What is *practical* is what is capable of being done usefully or valuably.

Ecosystem Function…..(going to "Significant Nexus")

Processes that are necessary for the maintenance of an ecosystem (e.g. primary production, elemental cycling, decomposition)

Ecosystem functions are distinctly different from ecosystem "values."

The term values is associated with society's perception of ecosystem functions.

Functions occur in ecosystems regardless of whether or not they have values.

Riverine Waters/Wetland Functions – National List (Following Brinson et al., 1995)

Hydrology
1. **Dynamic Surface Water Storage**
2. **Long-term Surface Water Storage**
3. **Energy Dissipation**
4. **Subsurface Storage of Water**
5. **Moderation of Groundwater Flow or Discharge**

Biogeochemistry
6. **Nutrient Cycling**
7. **Removal Of Dissolved Elements and Compounds**
8. **Retention of Particulates**
9. **Organic Carbon Export**

Plant Community
10. **Plant Community**
11. **Detrital Biomass**

Faunal Support/Habitat
12 **Spatial Structure of habitat**
13. **Interspersion and Connectivity of habitats**
14. **Distribution and Abundance of Invertebrates**
15. **Distribution and Abundance of Vertebrates**

Depressional Waters/Wetland Functions

Hydrology

1. **Surface and Shallow Subsurface Water Storage and Exchange**
2. **Landscape Hydrologic Connections**

Biogeochemistry

3. **Cycling of Elements and Compounds**
4. **Detention of Imported Elements and Compounds**
5. **Particulate Retention**
6. **Export of Organic Carbon**

Plant Community

7. **Plant Community**
8. **Detrital Community**

Faunal Support/Habitat

9. **Spatial Structure of Habitats**
10. **Interspersion and Connectivity of Habitats**
11. **Distribution and Abundance of Invertebrates**
12. **Distribution and Abundance of Vertebrates**

Slope Waters/Wetland Functions

Hydrology

1. **Surface and Subsurface Water Storage and Exchange**
2. **Landscape Hydrologic Connections**

Biogeochemistry

3. **Cycling of Elements and Compounds**
4. **Retention and Detention of Particulates**
5. **Organic Carbon Export**

Plant Community

6. **Plant Community**
7. **Detrital System**

Faunal Support/Habitat

8. **Spatial Structure of Habitats**
9. **Interspersion and Connectivity of Habitats**
10. **Distribution and Abundance of Invertebrates**
11. **Distribution and Abundance of Vertebrates**

"Single And Complete Project" Definition ….Should Avoid "Piecemealing"

Agencies want to understand the scope, size

and timing of a "single and complete project."

"Special Aquatic Sites" - 40 CFR § 230.3(q-1)

Those sites identified in 40 CRF 230, Subpart E (i.e., sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes). They are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region.

Summary of Section 404(b)(1) Guidelines (40 CFR 30.10)

A. No Discharge Permitted If Practicable Alternatives Exist For The Proposed Project

(1) Practicable - includes cost, technology, logistics, and project purpose,
(2) Practicable alternatives are presumed for non water dependent projects,
(3) NEPA Projects - Alternatives discussed in NEPA Document, but must be consistent with examination of practicable alternatives as given in 404(b)(1) Guidelines

B. No Discharge Permitted If The Proposed Project:

(1) Violates State water quality standards (401)
(2) Violates toxic effluent standards
(3) Jeopardizes Endangered Species
(4) Violates Marine Sanctuary

C. No Discharge Permitted If It Would Result In Significant Degradation, Either Individually Or Cumulatively, Of:

(1) Human health or welfare, water quality supply, fish, plankton, shellfish, wildlife or special aquatic sites.
(2) Life stages of aquatic life or water dependent wildlife
(3) Aquatic ecosystem diversity, productivity or stability,
(4) Recreation, aesthetic, or economic values.

D. No Discharge Permitted Unless Practicable Steps Are Taken To Minimize Potential Adverse Impacts.

Factual Determinations by the Permitting Authority (230.11)

A. Physical Substrate
B. Water Circulation, Fluctuation, Salinity
C. Suspended Particulates/Turbidity
D. Contaminants
E. Ecosystems Or Organisms
F. Disposal Site
G. Cumulative Effects On Aquatic Ecosystems
H. Secondary Impacts

Findings of Compliance or Noncompliance (230.12)

A. Proposed Disposal Site Must:

(1) Comply with 404 (B) (1) Guidelines; OR
(2) Comply With Guidelines With Inclusion of Conditions To Minimize Adverse Impacts.
(3) Fail To Comply With Guidelines Because:
a. Practicable Alternatives
b. Significant Degradation
c. Does Not Minimize Potential Harm
d. Not Enough Information

B. Findings Are Made In Writing For Each Proposed Discharge.

List of Tools to Protect Wetlands

A. Permit Review / Permit Conditions / Mitigation
B. U.S. Army Corps Cease and Desist Orders
C. EPA Administrative Orders (CWA 309 (A))
D. EPA Administrative Penalty (1987 - CWA 309 (G))
E. Referrals to U.S. Department of Justice – Trials / Settlement Agreements
F. Advanced Identification (40 CFR - 230.80)
G. Special Area Management Plans
H. EPA Section 404 (C) Actions

SECTION 404 – Enforcement

Penalty Settlement Matrix

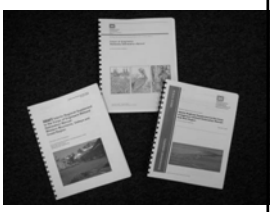
	ENVIRONMENTAL SIGNIFICANCE			
		MINOR	MODERATE	MAJOR
Compliance	MINOR	$500-$5,000	$5,000-$15,000	$15,000-$25,000
Significance	MODERATE	$15,000-$25,000	$25,000-$50,000	$50,000-$75,000
	MAJOR	$50,000-$75,000	$75,000-$100,000	$100,000-$125,000

Section 404(f)(1) & (f)(2) – Silvicultural, Agricultural,& Ranching Exemptions

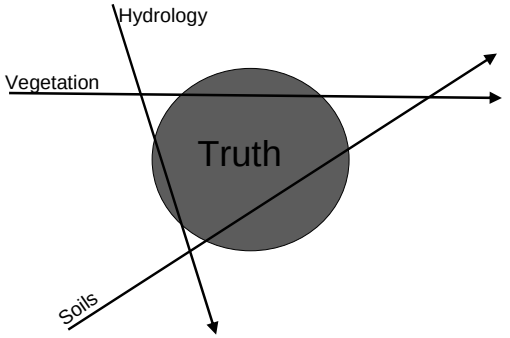
1. Genesis – commerce clause protection
2. Normal farming, ranching and silviculture
3. On-going and continuous use
4. Minor fills
5. Significant alterations to surface and shallow subsurface water flow and circulation
6. Recapture under (f)(2)

1987 CORPS WETLANDS DELINEATION MANUAL - APPROACHES:

- **ROUTINE –**
  - **Procedures primarily qualitative**
  - **Level of effort dependent on complexity of site and available data**
- **COMPREHENSIVE –**
  - **Procedures primarily quantitative**
  - **Level of effort considerable**
- **"ATYPICAL" SITUATIONS**
  - **For highly altered conditions**



The Three Parameter Approach



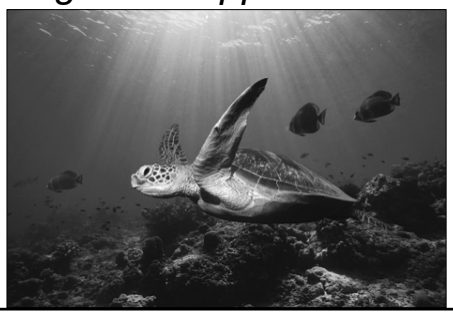
FLEXIBILITY
Part 1, Page 8, Paragraph 23

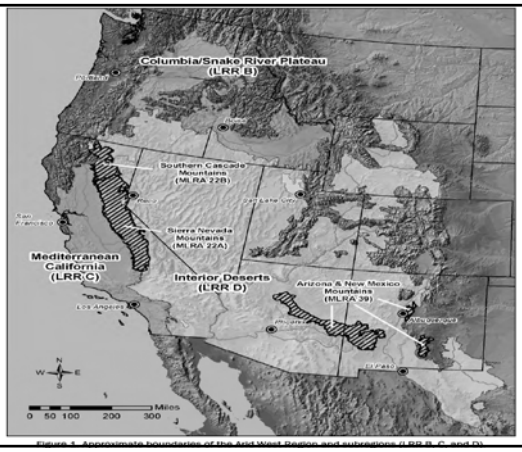
Procedures described for both routine and comprehensive wetland determinations have been tested and found reliable. However, site specific conditions may require modification of field procedure.

In these cases, the user has the flexibility to employ alternative sampling procedures to those described in the manual as long as the basic approach for making wetland determinations is not altered (i.e. the determination should be based on:

- **The dominant plant species,**
- **The soil characteristics, and**
- **The hydrologic characteristics of the area in question)**

Western Mountains Valleys and Coast and Arid West Regional Supplements





Objectives

Upon completion of this course, you will:

- Understand the implementation requirements of both supplements
- Be able to identify the key differences between the 1987 Manual and the supplements
- Introduce and explain new terminology
- Have tips on how to effectively use the supplements

Presentation Outline

- Requirements for the Implementation of Supplements
- Changes/Differences for
  - Hydrology
  - Hydric soils
  - Hydrophytic Vegetation
  - Difficult Wetland Situations – (“Naturally Problematic” & “Significantly Disturbed” Conditions)

1987 Manual and Supplements

- Only specific sections of the 1987 Manual are replaced by the Supplements
- Where differences occur the Supplements take precedence over the 1987 Manual

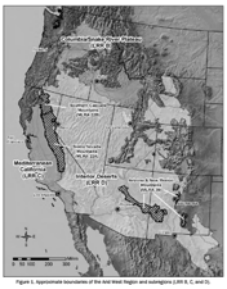
Item	Replaced Portions of the Corps Manual (Environmental Laboratory 1987)	Replacement Guidance (this Supplement)
Hydrophytic Vegetation Indicators	Paragraph 35, all subparts, and all references to specific indicators in Part IV	Chapter 2
Hydric Soil Indicators	Paragraphs 44 and 45, all subparts, and all references to specific indicators in Part IV	Chapter 3
Wetland Hydrology Indicators	Paragraph 49(b), all subparts, and all references to specific indicators in Part IV	Chapter 4
Growing Season Definition	Glossary	Chapter 4, Growing Season; Glossary
Hydrology Standard for Highly Disturbed or Problematic Wetland Situations	Paragraph 48, including Table 5 and the accompanying User Note in the online version of the Manual	Chapter 5, Wetlands that Periodically Lack Indicators of Wetland Hydrology, Procedure item 3(b)

Arid West Supplement

- Interim draft implemented on January 16, 2007
- Approximately 1 year comment period expired
- Final version issued September, 2008

Arid West Supplement

- Regions included in the LA, San Francisco, Portland, & Seattle Districts…
  - Columbia/Snake River Plateau (Land Resource Region B)



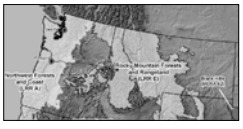
Western Mountains Valleys and Coast (WMVC) Supplement

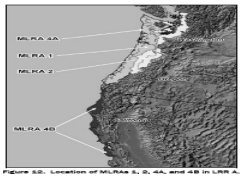
- Interim Supplement implemented in Seattle District on June 28, 2008; In San Francisco in July, 2008
  - For field work performed after June 28, 2008, Supplement and new data forms must be used
  - If differences found, submit comments to HQUSACE for a 1 year interim period

WMVC Supplement

Regions included in the San Francisco, Portland, & Seattle Districts

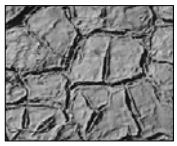
- **NW Forests and Coast (LRR A)**
  - **Northern Pacific Coast Range, Foothills and Valleys (MLRA 1)**
  - **Willamette and Puget Sound Valleys (MLRA 2)**
  - **Sitka Spruce Belt (MLRA 4A)**
- **Rocky Mountain Forests and Rangeland (LRR E)**
- **MLRA 4B – California Coast**



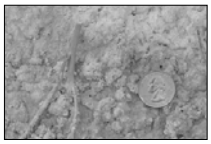


Transition Areas

- Should look at the landscape and site conditions, not just map location
- If uncertain which supplement to use, consult with the Corps



Hydrology



Overview

Hydrology Comparison

1987 Manual

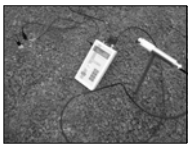
- Methods to determine growing season
- 11 field indicators
- Primary and secondary indicator status

Supplements

- New method to determine growing season
- 27 field indicators for WMVC and 23 field indicators for Arid West
- Changes in primary and secondary indicator status

Methods to Determine the Growing Season

- Vegetative growth
- Soil temperature
- Air temperature



Hydrology Indicators in Supplements

- See *Comparison of Hydrology Field Indicators*
- Group “A” – direct observation of surface or ground water during a site visit
- Group “B” – evidence the site is subject to flooding or ponding
- Group “C” – indirect evidence soil was saturated recently
- Group “D” - features showing recent vs historical wet conditions
- Read “Cautions and User Notes” for each indicator

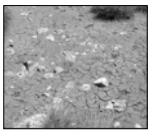
Need 1 primary or 2 secondary indicators to meet wetland hydrology criteria.

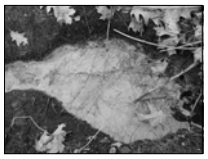
Hydrology Indicators in Supplements

New Hydrology Indicators

B4 - Algal mat or crust
(WMVC only)

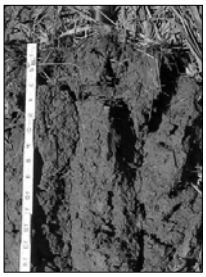
B6 – Surface soil cracks





B5 – Iron deposits
(WMVC only)

Soils

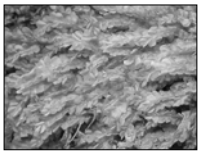


Overview
Soils - Comparison

1987 Manual
- Definition of hydric soils
- 12 Indicators
- "Atypical Situations" and "Problem Area" procedures

Supplements
- Definition of hydric soils
- 18 Field Indicators in WMVC and 22 Indicators in the Arid West (see *Hydric Soil Indicator Comparison* Sheet)
- Use of NTCHS Field Indicators of Hydric Soils (see *Field Guide Sheets*)
- Difficult Wetland Situations procedures

Vegetation



Overview
Vegetation - Comparison

1987 Manual
- +/- modifiers on indicator status
- Method to determine dominant species is not specifically recommended
- Dominance Test: Greater than 50% of dominant species are FAC or wetter
- Morphological adaptations
- Atypical Situations and Problem Area procedures

Supplements
- Elimination of +/- modifiers
- Recommended use of 50/20 Rule to determine dominant species in each stratum
- Dominance Test: greater than 50% of dominant species are FAC or wetter
- Prevalence Index: PI is 3.0 or less
- Morphological adaptations
- Wetland non-vascular plants (WMVC only)
- Difficult Wetland Situations procedures

Difficult Wetland Situations in the Arid West and WMVC Regions

New Approaches to 1987 Manual "Atypical Situations" & "Problem Areas"

Overview
Difficult Wetland Situations

1987 Manual
- **"Atypical Situations"**
- **"Problem Areas"**
  - **4 examples**
- **Procedures:**
  - **Verify presence of two parameters**
  - **Document reason for missing parameter**

Supplements
- **"Significantly Disturbed"**
- **"Naturally Problematic"**
  - **16 examples in WMVC**
  - **13 examples in Arid West**
- **Procedures**
  - **Verify presence of two parameters**
  - **Document reason for missing parameter**

Areas that are "Significantly Disturbed"

(formerly "Atypical Situations")

Areas in which indicators of one or more wetland parameters have been obscured by some recent human or natural change or disturbance

Areas that are "Naturally Problematic"

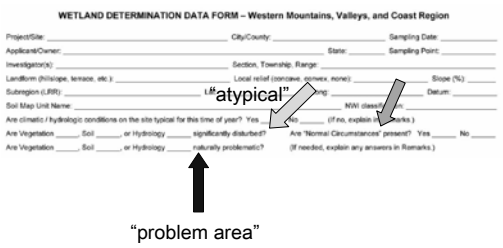
(formerly "Problem Areas")

Naturally occurring wetland types that lack one of the indicators periodically due to normal seasonal or annual variability or permanently due to the nature of the soils or plant species on the site

"Normal Circumstances"

- **Definition of wetlands: ….and that under normal circumstances do….**
- **Consider extent and relative permanence of the alteration**
- **"Significantly disturbed" situations are not typically "normal circumstances" (e.g., mechanized land clearing)**
- **"Naturally problematic" areas can be "normal circumstances" (e.g., seasonal wetlands)**

Supplement Data Sheet



Difficult Wetland Situations in the AW and WMVC Regions

Problematic Hydrology

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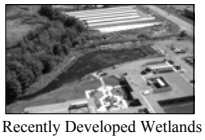
Problematic Soil Types

Volcanic Ash

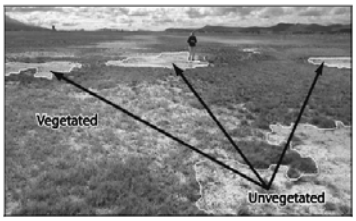


Recently Developed Wetlands

Seasonally Ponded Soils

Difficult Wetland Situations in the AW and WMVC Regions - Vegetation

Temporal Shifts in Vegetation,
Sparse and Patchy Vegetation, etc.



Questions?

- LA District – Bruce Henderson (Ventura Office)(805.585.2145)
- San Francisco District – Mark D'Avignon (415.503.6773)
- Seattle District – Tina Tong
- Corps Headquarters
  Katherine Trott (CECW-CO)
  U.S. Army Corps of Engineers
  441 G Street, NW
  Washington DC 20314-1000
  email: 1987Manual@usace.army.mil