Ordinary High Water Mark (OHWM) Delineation

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US Army Corps of Engineers

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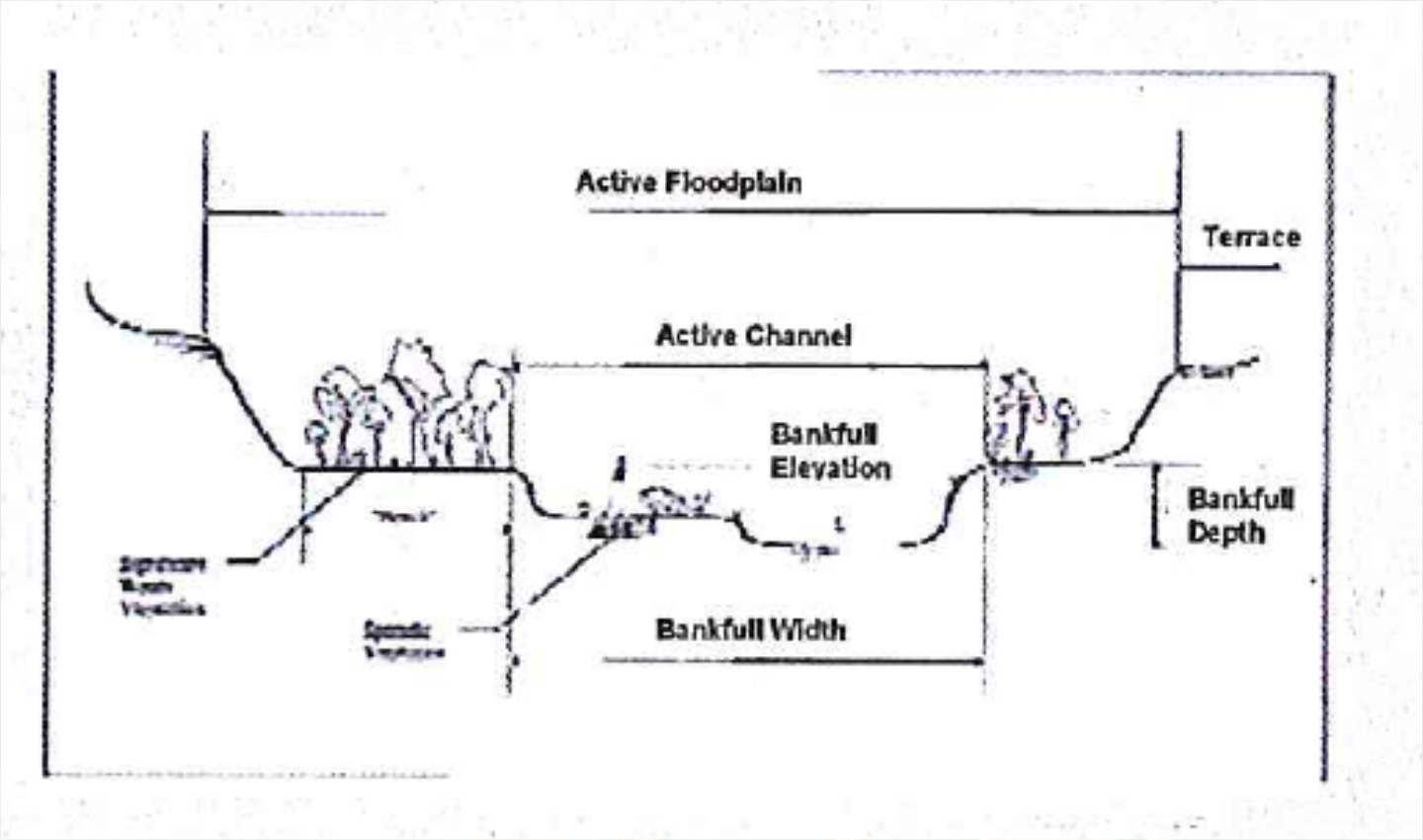
What is the Ordinary High Water Mark?

- It’s a regulatory boundary
- The OHWM demarcates the lateral extent of waterways protected under Rivers and Harbors Act and Clean Water Act.

What is the Ordinary High Water Mark

"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))

Where is the Ordinary High Water Mark



What's the problem?

- The Federal OHWM definition leaves substantial room for interpretation
- The OHWM is poorly understood concept
- Fluvial systems are spatially and temporally dynamic on many scales
- Existing guidance is too vague, needs context

What is the Ordinary High Water Mark

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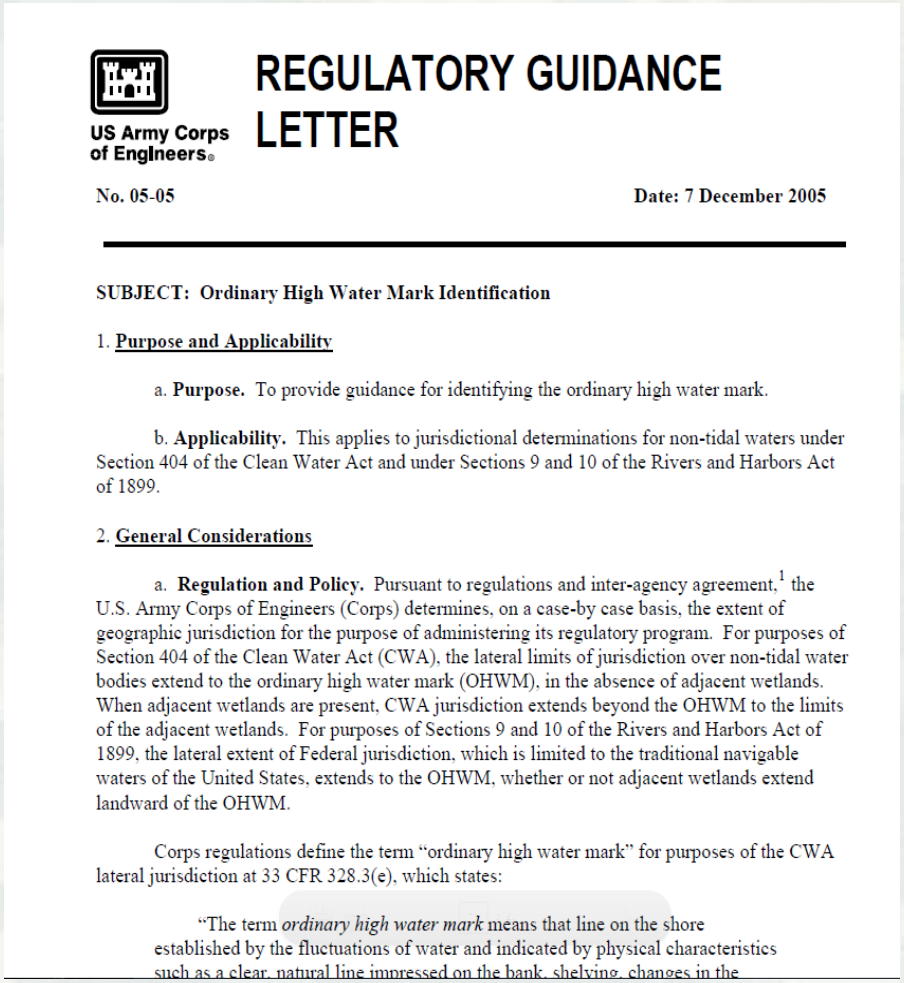


US Army Corps of Engineers

REGULATORY GUIDANCE LETTER

No. 05-05 Date: 7 December 2005

SUBJECT: Ordinary High Water Mark Identification

1. **Purpose and Applicability**

a. **Purpose.** To provide guidance for identifying the ordinary high water mark.

b. **Applicability.** This applies to jurisdictional determinations for non-tidal waters under Section 404 of the Clean Water Act and under Sections 9 and 10 of the Rivers and Harbors Act of 1899.

2. **General Considerations**

a. **Regulation and Policy.** Pursuant to regulations and inter-agency agreement,[1] the U.S. Army Corps of Engineers (Corps) determines, on a case-by case basis, the extent of geographic jurisdiction for the purpose of administering its regulatory program. For purposes of Section 404 of the Clean Water Act (CWA), the lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. For purposes of Sections 9 and 10 of the Rivers and Harbors Act of 1899, the lateral extent of Federal jurisdiction, which is limited to the traditional navigable waters of the United States, extends to the OHWM, whether or not adjacent wetlands extend landward of the OHWM.

Corps regulations define the term "ordinary high water mark" for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

"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 a clear, natural line impressed on the bank, shelving, changes in the

- "Corps districts generally rely on physical evidence to ascertain the lateral limits of jurisdiction…"
- "In addition, districts use…stream gage data, flood predictions, historic records of water flow, and statistical evidence."
- "…districts should generally try to identify two or more characteristic, unless there is particularly strong evidence of one"
- "…districts should be careful to look at characteristics associated with OHWM events, which occur on a regular or frequent basis"

Photo 19. An unnamed ephemeral tributary flowing into Wolf Trap Creek, Vienna, VA. Water flows through the ephemeral tributary typically during and after storm events.

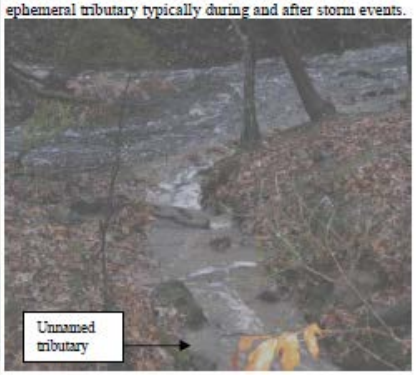


Photo 20. Unnamed ephemeral tributary, TX. Water flows typically during and after storm events. Yellow lines mark approximate location of OHWM.

Photo 21. Soft-bottom intermittent tributary with a flood control levee, Ventura County, CA.

Photo 22. Desert ephemeral tributary, Los Angeles County, CA.

Photo 27. Red Stone Creek (ephemeral tributary), Larimer County, CO. White line marks approximate location of OHWM.

Photo 28. Ephemeral tributary, Converse County, WY. White lines mark approximate location of OHWM.

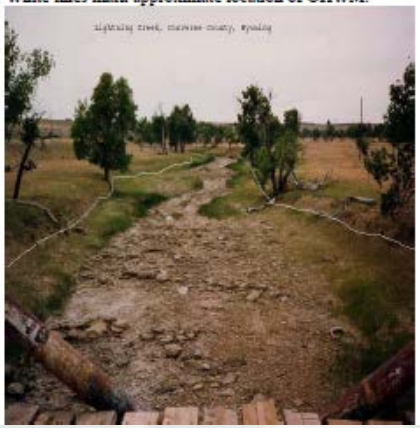
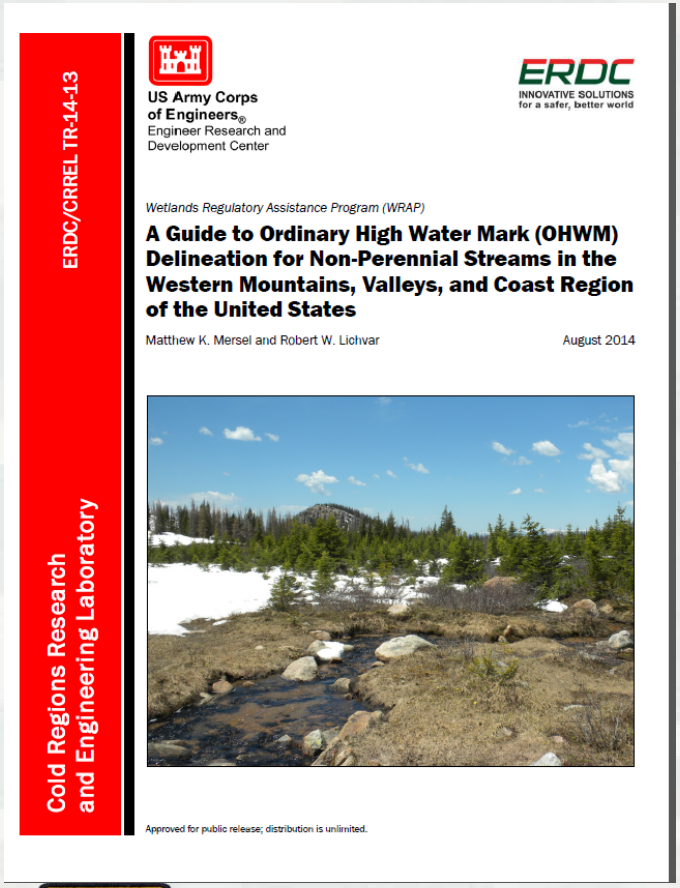


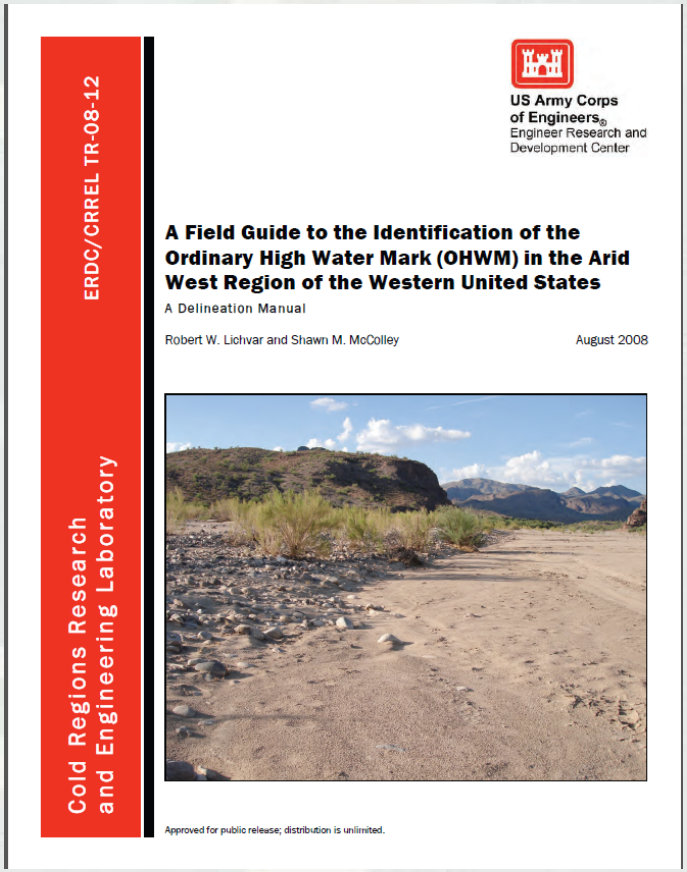
Photo 29. Ephemeral tributary, a concrete flood control channel, Santa Barbara, CA.

Engineering Research and Design Center (ERDC)

Western Mountains



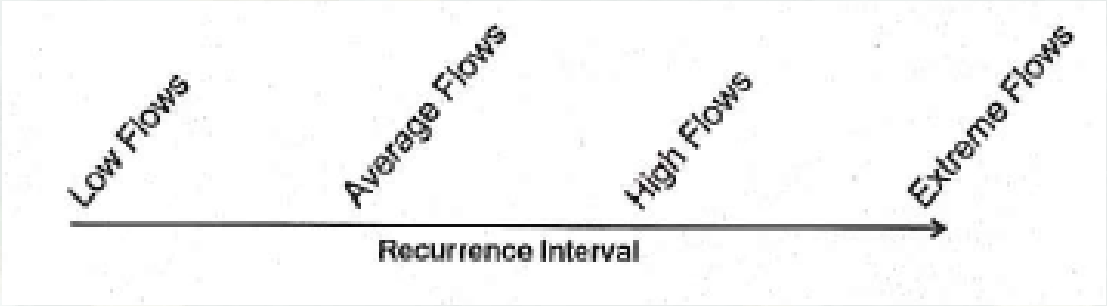
Arid West



www.erdc.usace.army.mil/ohwm

How is the OHWM characterized hydrologically

- "ordinary high water" implies flow levels are above average, but less than extreme, and that occur with some regularity



- But the OHWM is NOT associated with a specific stream flow recurrence interval (e.g., the 2-year discharge)

Concepts of the OHWM

- We have a general notion of the hydrology associate with the OHWM (average<OHWM<extreme)
- BUT, the OHWM is ultimately defined by the physical characteristics and should be represented by an actual mark on the landscape

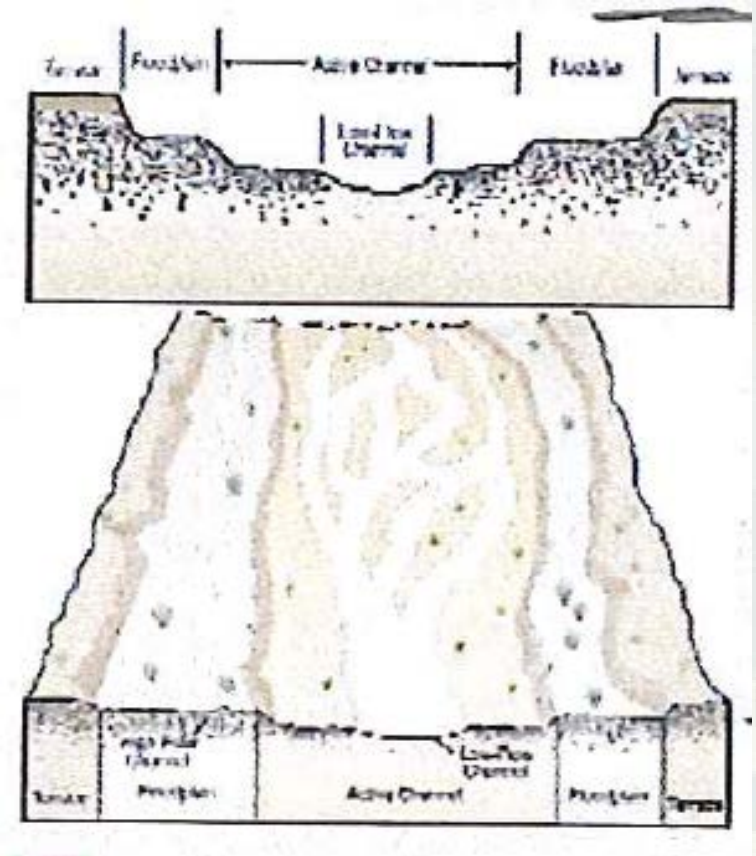
Concepts of the OHWM

- Indicators of the ordinary high water should be ordinary themselves (i.e., relatively stable; consistently present and identifiable over time and by different investigators)

OHWM

- The concept of “ordinary high water” encompasses water levels that are ***above average, but not extreme***, and that occur with some regularity
- The OHWM should generally be represented by a ***physical mark*** on the landscape
- OHWM indicators should be fairly ***stable/consistent over time***

The Active Channel



- The only hydrogeomorphic unit that is common to essentially every river or stream
- Fully contains streamflow the vast majority of time
- Where the majority of sediment transport processes occur
- Established and maintained by flows that typically recur on the order of several times per year or decade

The Active Channel

- The active channel can be seen as ordinary with respect to the recurring high flows that it contains as well as its presence across regions and stream types.
- The boundaries of the active channel are a proxy for the inundation extent of flow that are above average but less than extreme and that recur with a frequency that is sufficient to maintain a channel on the landscape.

The Active Channel “Signature”

- The active channel commonly leaves a physical and/or biological “signature” on the landscape
- Primary indicators of the active channel signature are:
  - ► Topographic breaks in slope
  - ► Changes in sediment characteristics
  - ► Changes in vegetation characteristics

The Active Channel “Signature”

Policy

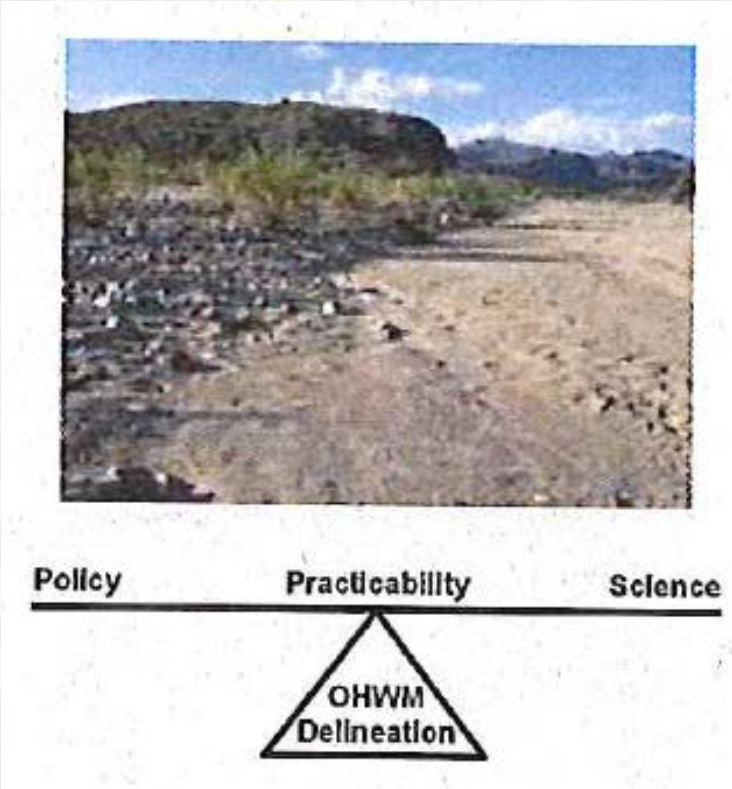
- Leaves a mark on the landscape
- A proxy for the extent of recurring high flows

Science

- Hydrogeomorphic significance

Practicability

- Consistent feature across different landscapes/stream types
- Relatively stable over time.



Confirm

- RGL 05-05 recommends confirming OHWM by using additional tools such as
  - stream gage data,
  - flood predictions,
  - historic records of water flow
  - statistical evidence
  - aerial images
  - hydrologic modeling

Erosional Features

- Formed from a single or compounded event(s).
- Does not receive flow with enough "regularity" in terms of frequency and duration to form an ordinary high water mark.

Photo 59: Gullies are eroded channels where surface runoff concentrates. This photo shows a gulley formed by eroding material.

Photo 60. These erosional features are small channels eroded into the soil surface by runoff.

Swale

- Swales are generally shallow features in the landscape that may convey water across upland areas during and following storm events.
- Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale.

Photo 57. Unnamed desert swale is not jurisdictional under the CWA.

Photo 58. Swale is not jurisdictional under the CWA.

May still contribute to a surface hydrologic connection between an adjacent wetland and a TNW

Conclusion

Regulatory definition potentially vague, but we know…

- Average flow<OHWM flow<Extreme flow
  - Recurring flow levels
  - But no strict flow definition
- A Geomorphic, not hydrologic, approach
  - Physical expression on landscape – the Active Channel
  - The “active channel signature”
    - Break in slope
    - Change in sediment characteristics
    - Change in vegetation characteristics
- OHWM ideally associated with indicators that are relatively stable/consistent over time