# Workshop on Determining the Ordinary High Water Mark in Arid West Drainages

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US Army Corps of Engineers BUILDING STRONG®



## Waters of the United States & the OHWM

- In order for a stream channel to be considered a water of the U.S. it must demonstrate an Ordinary High Water Mark (OHWM).
- The Corps and ultimately EPA make the final jurisdictional determination. Consultants often perform the field work and submit a report for our review and concurrence.





## **Jurisdictional Limits**

- Activity or discharge must occur below the OHWM of the stream or within wetland or pond in order to break the plane of jurisdiction.
- Once the OHWM plane is broken or proposed to be broke a Department of the Army (DA) permit is required.







# REGULATORY GUIDANCE

No. 05-05

US Army Corps of Engineers.

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,<sup>1</sup> 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..."
- "...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"





The following **physical characteristics** should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable:

- Natural line impressed on the bank
- Bed and bank
- Changes in the character of soil
- Destruction of terrestrial vegetation \*\*\*\*\*\*
- Presence of litter and debris





- Wracking
- Vegetation matted down; bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Shelving
- Water staining
- Change in plant community





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



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



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





Photo 37. Wetland is adjacent to a non-RPW, AR. Red lines mark approximate location of OHWM.

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



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





events

Photo 42. Impoundment on an RPW, South Atlantic Division. Water flows into a TNW; water is jurisdictional under the CWA. Red lines mark the approximate location of the OHWM.



Tributary has (check all that apply): Bed and banks OHWM <sup>6</sup> (check all indicators that apply): clear, natural line impressed on the bank changes in the character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition		the presence of litter and debris destruction of terrestrial vegetation the presence of wrack line sediment sorting scour multiple observed or predicted flow
sediment deposition		multiple observed or predicted flow abrunt change in plant community
☐ other (list):		abrupt enange in plant community
Discontinuous OHWM. / Explain:	-	

# OHWM sometimes straightforward







# OHWM sometimes not – Arid West









# Arid West has Dynamic River Systems





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### Engineering Research and Design Center (ERDC)





Approved for public release; distribution is unlimited



#### www.erdc.usace.army.mil/ohwm



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## **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

- Note changes in terminology since the 2008 manual:
  - bankfull channel now referred to as the lowflow channel
  - active floodplain now referred to as the active channel
  - low terrace now referred to as the floodplain.



### Example of Active Channel ephemeral stream









# **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





### Hydrology, Geomorphology and Vegetation







### Hydrology, Geomorphology and Vegetation







### **OHWM Data Sheets**

#### Arid West Ephemeral and Intermittent Streams OHWM Datasheet





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- We Bridge

Wentworth Size Classes

Millimeters (mm)

2.00

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0.125 ---

0.031 ----

0.0625

0.0158

0.0078

0.0039

258

- -1.00

- -0.50

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64

185 

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1/2 0.0008

1/4 0.005

1/16

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1/64

Cross section drawing:	11- shared change
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110 11	Appears to be
8'	1 2' bedrock controlle
Shallow (6") LFC	
compared to AFP 6" 5"	Low-Flord Channel
Atturna = Active flor	adologia = 8'WIDE
OHWM	ESC #/
N	Elizare As-
GPS point: See Incation on tront	
Indicators:	
Change in average sediment texture	Break in bank slope
Change in vegetation species	Other:
Change in vegetation cover	U Other:
Comments	
Evidence of sediment sorting	, smoothing of particles.
Evidence of Section 1	
This sorting is indicative o	of more regular flow events.
Floodplain unit: 🛛 Low-Flow Channel	Active Floodplain Low Terrace
Floodplain unit: X Low-Flow Channel	Active Floodplain Low Terrace
Floodplain unit: X Low-Flow Channel	Active Floodplain  Low Terrace
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Toodplain unit: Low-Flow Channel	Active Floodplain Low Terrace
PS point:	
Tharacteristics of the floodplain unit:         Average sediment texture:         Delable         Total veg cover:         Tot	hrub:% Horb: <u>TR_</u> %
X NA Early (herbaceous & seedlings)	<ul> <li>Mid (herbaceous, shrubs, saplings)</li> <li>Late (herbaceous, shrubs, mature trees)</li> </ul>
ndicators: Mudoraoks Ripples Drift and/or debris Presence of bed and bank Benches	Soil development Surface relief Other: Other: Other:
Comments:	
upland vegetation across site	e. Evidence of particle sorting
and rounding.	
0	
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5 E	phemeral Stream Channel 1
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### What are the jurisdictional limits?







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## **Isolated Waters**





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### Compound Channels

Compound channels are characterized by a mosaic of terraces within a wide, active floodplain and frequently shifting low-flow channel(s)..





## Conclusion

- OHWM ideally associated with indicators that are relatively stable/consistent over time
  - Indicators include
    - Natural line impressed on the bank
    - ▷ Bed and bank
    - Destruction of terrestrial vegetation \*\*\*\*\*
    - Scour, deposition, and sorting
- A Geomorphic, hydrologic, and vegetative approach for the Arid West: Looking for the "active channel signature"
  - Break in slope
  - Change in sediment characteristics
  - Change in vegetation characteristics \*\*\*\*\*





## **Questions?**

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