



Photo Credits for Aquatic Resources Awareness Course for Real Estate Appraisers



Photos used for this course were taken from a number of public domain galleries, reference documents, and U.S. EPA. The sources of the photos used in the course are below however please note that this is not a comprehensive list of all photos.

Guide to Course

U.S. Environmental Protection Agency, Eric Vance — *Wetland Scene*

Part 1. Introduction to Aquatic Resources

U.S. Environmental Protection Agency — *Where Land Meets Water*:
<http://water.epa.gov/type/wetlands/index.cfm>

What are Aquatic Resources? — Clockwise

U.S. Fish and Wildlife Service, Los Banos National Wildlife Refuge — *Waterfowl*

Daily Mail, Why Species Found in Coral Reefs — *Coral Reef*

http://i.dailymail.co.uk/i/pix/2013/05/28/article-0-19327528000005DC-166_634x425.jpg

U.S. Fish and Wildlife Service, George Gentry — *Salt Marsh*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/7793/rec/7>

U.S. Environmental Protection Agency, Region 10, Bristol Bay watershed

<https://www.flickr.com/photos/usepagov/sets/72157629587154514/>

Importance of Identifying Aquatic Resources — Clockwise from upper left

Larson, Dennis. U.S. Fish and Wildlife Service — *Trumpeter Swan*:

<http://photogallery.nrcs.usda.gov/netpub/server.np?find&catalog=catalog&template=detail.np&field=itemid&op=matches&value=6157&site=PhotoGallery>

Hillebrand, Steve. U.S. Fish and Wildlife Service — *Simeonof Island Bog*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/2708/rec/1>

U.S. Environmental Protection Agency — Clean Water Act Section 404 Regulatory Training — *Pine*

Flatwoods: Hillebrand, Steve. U.S. Fish and Wildlife Service — *Aquatic Environment*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/11500/rec/1>

Wetlands Functions and Services: Diversity & Habitat— Clockwise from upper left

U.S. Fish and Wildlife Service — *Scenic View of Cypress Swamp Bottomland*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/10732/rec/3>

U.S. Fish and Wildlife Service — *Smiling for the Camera!*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/9678/rec/1>

Hagerty, Ryan. U.S. Fish and Wildlife Service — *Salt Marsh Habitat*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/8987/rec/5>

U.S. Environmental Protection Agency — Wetland Photo Collection — *Great Blue Heron*

U.S. Environmental Protection Agency — Neil Losin, 2003 Wetland Photo contest submission — *Frogs*

Wetlands Functions and Services: Biogeochemical Cycling & Water Quality

U.S. Fish and Wildlife Service — *Powerline Route*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/12702/rec/4>

U.S. Environmental Protection Agency — *Forested Wetland*

Wetlands Functions and Services: Water Quantity & Flood Control

U.S. Environmental Protection Agency, Bill Sipple — *Floodplain Marsh in Non-flooded Conditions*:
http://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=293

Wetlands Functions and Services: Recreation/Education and Economic Benefits

U.S. Fish and Wildlife Service, Megan Durham — *Waterfowl Hunt*:
<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/4827/rec/2>
U.S. Fish and Wildlife Service, Steve Hillebrand — *Beautiful Day for Birdwatching*:
<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/9638/rec/1>

Section 404: Regulates Discharge of Dredged or Fill Material

U.S. Environmental Protection Agency, Region 10 — *In-water Dredging*

Section 404(f) Exemptions — From top to bottom

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course — *Silviculture operation*
U.S. Fish and Wildlife Service, Phyllis Cooper — *National Wildlife Refuge Field Maintenance*:
<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/7830/rec/1>

Section 404: Compensatory Mitigation

U.S. Environmental Protection Agency, Region 10 — *Restoration*
U.S. Environmental Protection Agency, Region 10 — *Mitigation Bank*

Additional Resources You Must View to Proceed with Course

U.S. Fish and Wildlife Service, Wyman Meinzer — *WO4590 Wetlands, Upper Midwest*:
<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/120/rec/1>

Part 2 — Identification of Aquatic Resources

National Park Service — *Wetland with Fallen Trees*:
<http://nature.nps.gov/water/wetlands/index.cfm>

Identification of Aquatic Resources — photos from left to right

U.S. Fish and Wildlife Service, Gary Peebles — *Sphagnum Moss*:
<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/11979/rec/1>
U.S. Environmental Protection Agency, Region 10 — *Dry forested stream channel*
Streamflow Duration Manual field testing study, 2013.
U.S. Environmental Protection Agency, Region 10 — *Wet stream channel*
Streamflow Duration Manual field testing study, 2013.
U.S. Fish and Wildlife Service, Pete Pattavina — *Forest Swamp*:
<http://www.public-domain-image.com/nature-landscapes-public-domain-images-pictures/wetlands-and-swamps-public-domain-images-pictures/forest-swamp.jpg.html>

Rivers and Streams

U.S. Environmental Protection Agency, Region 10: *Intermittent-Wet Season, Intermittent-Dry Season — Streamflow Duration Manual*

http://www.epa.gov/sites/production/files/2016-01/documents/streamflow_duration_assessment_method_oregon_final_2011.pdf

U.S. Environmental Protection Agency, Region 10, Bristol Bay watershed

<https://www.flickr.com/photos/usepagov/sets/72157629587154514/>

Wetlands — What are they?

U.S. Fish and Wildlife Service, Doug Canfield — *Wind Turbines*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/13396/rec/2>

U.S. Fish and Wildlife Service — *Edwin B. Forsythe National Wildlife Refuge*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/13394/rec/133>

Wetland Types: Marshes

U.S. Environmental Protection Agency — *This Wet Meadow is in Rocky Mountain National Park in Colorado*: <http://water.epa.gov/type/wetlands/wmeadows.cfm>

U.S. Fish and Wildlife Service, George Gentry — *Salt Marsh*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/7793/rec/7>

U.S. Environmental Protection Agency, EPA America's Wetlands publication, Todd Vottler— *Inland Marsh*

Wetland Types: Swamps

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course— *Bottomland Hardwood*

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course — *Mangrove*

Wetland Types: Bogs & Fens

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course — *Alaskan Bog*

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course — *Pocosin*

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course — *Fen*

Wetland Types: Other — Clockwise from upper left

U.S. Environmental Protection Agency, Region 4 — *Pine Savanna flatwoods*

U.S. Environmental Protection Agency — *Vernal Pools*:

<http://water.epa.gov/type/wetlands/vernal.cfm>

U.S. Fish and Wildlife Service — *Prairie Pothole Wetland*:

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/6239/rec/3>

U.S. Environmental Protection Agency, Clean Water Act Section 404 Regulatory Training Course — *Playa Lake*

Consider Seasonality in Determining Wetland Presence

U.S. Environmental Protection Agency, Region 1, Leo Kenny, *Spring Seasonal wetland*

U.S. Environmental Protection Agency, Region 1, Leo Kenny, *Summer Seasonal wetland*

Step 2: Walk the Site

USDA Natural Resource Conservation Service, Gary Kramer — *NRCS Conservationist and Yolo County Farmer Inspect a Native Grass Planting near a Restored Wetland:*

<http://photogallery.nrcs.usda.gov/netpub/server.np?find&catalog=catalog&template=detail.np&field=itemid&op=matches&value=641&site=PhotoGallery>

Step 2: Walk the Site: Hydrology

U.S. Army Corps of Engineers — *Regional Supplement to the Corps of Engineers Wetland Delineation Manuals: Western Mountains, Valleys and Coast Region (Version 2.0), May 2010; Midwest Region (Version 2.0), August 2012; Arid West Region (Version 2.0), September 2008*

http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp2.pdf

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http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp2.pdf

Step 2: Walk the Site: Soils

United States Department of Agriculture, Natural Resources Conservation Service. 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0.

Step 2: Walk the Site: Vegetation

U.S. Army Corps of Engineers — *Regional Supplement to the Corps of Engineers Wetland Delineation Manuals: Western Mountains, Valleys and Coast Region (Version 2.0), May 2010; Midwest Region (Version 2.0), August 2012; Arid West Region (Version 2.0), September 2008*

http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp2.pdf

Step 2: Walk the Site: Ordinary High Water Marks

USDA Natural Resource Conservation Service, Gary Kramer — *Scenic Clear Creek, site of the Lower Clear Creek Stream Restoration Project:*

<http://photogallery.nrcs.usda.gov/netpub/server.np?find&catalog=catalog&template=detail.np&field=itemid&op=matches&value=751&site=PhotoGallery>

Step 2: Walk the Site: Consider Seasonality — From left to right

U.S. Environmental Protection Agency, Region 10 — *Vernal Pool wetland*

U.S. Fish and Wildlife Service — *Wet Prairies Plants Vegetation:*

<http://www.public-domain-image.com/full-image/nature-landscapes-public-domain-images-pictures/wetlands-and-swamps-public-domain-images-pictures/wet-prairies-plants-vegetation.jpg-copyright-friendly-photo.html>

U.S. Fish and Wildlife Service, Steve Hillebrand — *Wetland with Autumn Trees and Ducks:*

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/6608/rec/6>

U.S. Fish and Wildlife Service, Michael Schramm — *Winter view of Nisqually*

http://www.fws.gov/refuge/Billy_Frank_Jr_Nisqually/seasons_of_wildlife/index.html

Additional Resources You Must View to Proceed with the — Background

U.S. Fish and Wildlife Service, Ryan Hagerty — *Refuge Wetland Habitat:*

<http://digitalmedia.fws.gov/cdm/singleitem/collection/natdiglib/id/8993/rec/7>