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National Wetland Condition Assessment 2016

Site Evaluation Guidelines

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NOTICE

The goal of the National Wetland Condition Assessment (NWCA) is to provide a comprehensive assessment of the condition of the Nation’s wetlands. The complete documentation of overall NWCA project management, design, methods, and standards is contained in four companion documents:

- National Wetland Condition Assessment 2016: Field Operations Manual – 843-R-15-007
- National Wetland Condition Assessment 2016: Quality Assurance Project Plan – 843-R-15-008
- National Wetland Condition Assessment 2016: Laboratory Operations Manual – 843-R-15-009
- National Wetland Condition Assessment 2016: Site Evaluation Guidelines – 843-R-15-010

This document, *National Wetland Condition Assessment 2016: Site Evaluation Guidelines* (“Guidelines”) contains an overview of the process involved in locating a sampling site, evaluating the site to determine if it should be sampled, and selecting appropriate alternate sites when necessary. It is based on guidelines developed and followed in the Western Environmental Monitoring and Assessment Program (Peck et al., 2003), NWCA 2011, and the other National Aquatic Resource Surveys conducted by EPA and the States and Tribes (<http://www.epa.gov/national-aquatic-resource-surveys>). Methods described in this document are to be used specifically in work relating to the NWCA. Mention of trade names or commercial products in this document does not constitute endorsement or recommendation for use. Further detail on the project overview and specific methods for field sampling, sample handling, and sample processing can be found in the appropriate companion documents listed above.

The suggested citation for this document is:

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Version History

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1.0	1/15/16	
1.1	3/21/16	Minor clarifications and updated appendices (PV-1 form, site maps and AA reference cards)

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NATIONAL WETLAND CONDITION ASSESSMENT SITE EVALUATION GUIDELINES

This document is provided to clarify the steps involved in the process of locating and evaluating a sampling site for the National Wetland Condition Assessment (NWCA). The primary purpose of site evaluation is to determine whether a random sample point selected by the NWCA design is a wetland in the target population for the NWCA and is accessible and sampleable by a field crew. There are four main steps involved in this process (Figure 1):

1. Locate the sampling point on an aerial image, topographic and/or similar map and determine whether the point is within or very near (within 60 meters of) a wetland that is in the target population for the NWCA.
2. Determine if the point is accessible.
3. Verify that the point is sampleable or can be shifted to a nearby location that is.
4. Sample the point *OR* replace with an alternate point.

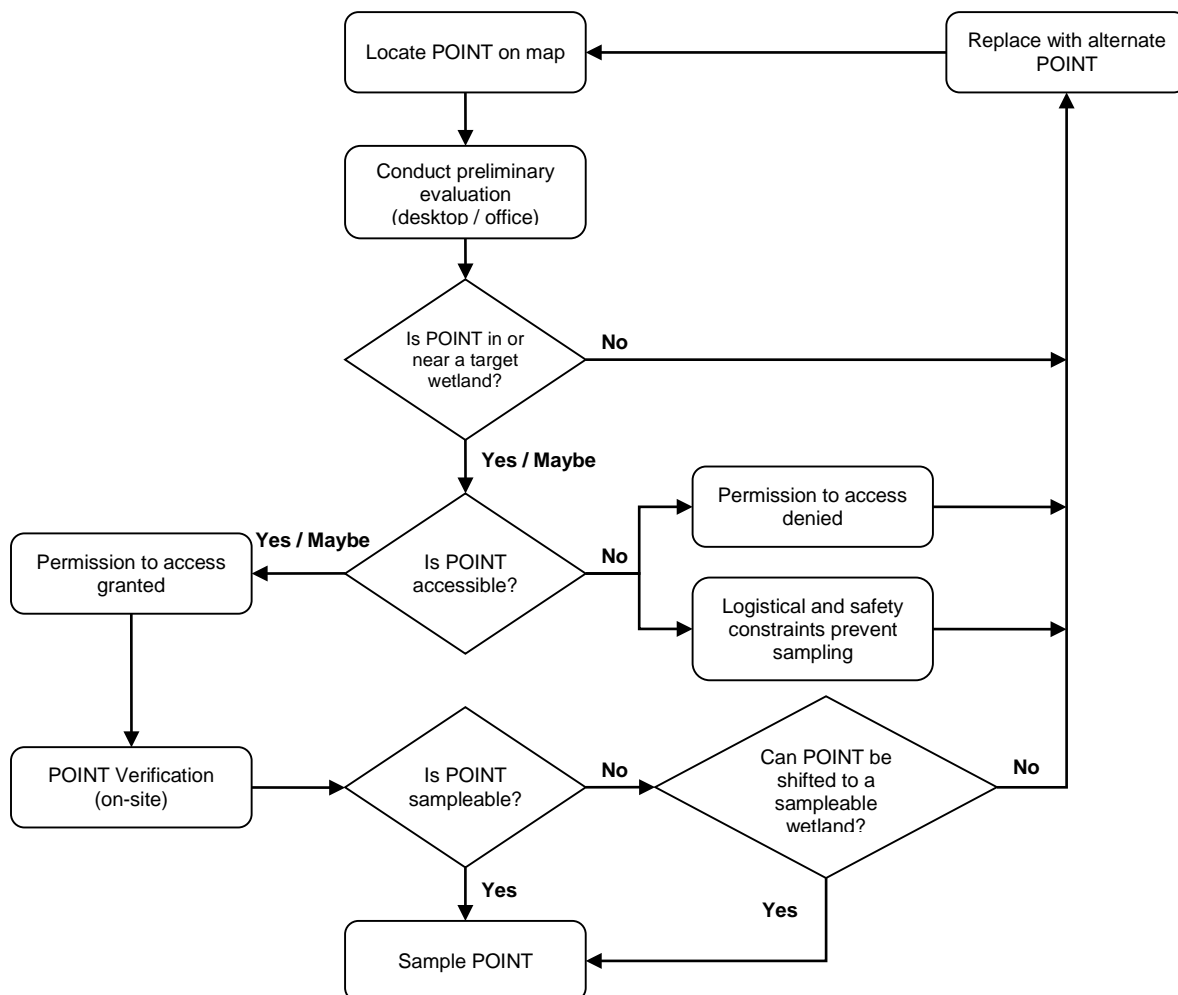


Figure 1. Process of point evaluation

In the process of completing each step in site evaluation, the Evaluation Team will assemble a site packet that contains important location and access information for each site they are scheduled to visit.

The site packet should contain appropriate maps, aerial images, contact information, photographs of the site, copies of landowner permission forms, all required permits and any other specific requirements or instructions to access and sample the site, and other information about the site that would benefit the field crew (e.g., soil types, plant species lists). If the Evaluation Team does not include employees from a state or tribal agency, they should contact appropriate state and tribal personnel to determine if they are able to provide technical assistance in verifying sites within the state or tribal boundary. Before a site visit, the Evaluation Team must contact the landowner(s) listed in the site packet to ensure they have permission to access the site and to obtain relevant site access information. This information may include:

- Presence of locked gates, pets, livestock, or other things that could impede access
- Active hunting, farming, mining, or other activities on or near the site
- Whether the landowner wants to be informed when the crew is on site
- Other current conditions that could prevent access (i.e., high water, forest fires, etc)

1.0 IDENTIFICATION OF WETLAND SAMPLING LOCATIONS

Wetland sampling locations were chosen from a sample frame that included two components:

- 1) the most current National Wetland Status and Trends (S&T) assessment sample frame, obtained from the USFWS (Dahl and Bergeson 2009, Dahl 2011); and
- 2) USFWS National Wetland Inventory (NWI) digitized maps of wetland types and locations (<http://www.fws.gov/wetlands/>).

The S&T sample frame consists of all polygons mapped based on remote sensing information for over 5,048 four square-mile plots across the 48 states. The S&T plots were used as the base data layer for the NWCA sample frame because they are the most consistent and current source of mapped wetlands on a national scale. The digitized NWI maps were used to increase the number of wetlands in the NWCA sample frame. Several other attributes incorporated into the sample frame are the boundaries for states, the boundaries for the five aggregated Omernik Level III ecoregions used in reporting the assessment results (NWCA Ecoregions), and designations of sites to one of twelve NWCA Survey Design Groups (combinations of NWCA Ecoregions and NWCA Target Wetland Types). Table 1 below provides descriptions of the NWCA Target Wetland Types.

Sample sites in the NWCA, hereafter referred to as “POINTS,” were randomly selected from the NWCA sample frame using a spatially balanced Generalized Random Tessellation Stratified (GRTS) survey design for an area resource, with each point having a known probability of being sampled (Stevens and Olsen 2004). The GRTS design ensures the sample is representative of wetland resources at national and regional scales. Using this approach, 904 wetland assessment locations were selected from across the conterminous US, consisting of 239 resampled sites from NWCA 2011 and 665 new sites. 96 of the 904 sites will be sampled twice to quantify variability in sampling. In addition, a pool of oversample sites were selected for use as replacements if any of the 904 assessment locations are not sampleable.

POINTS were selected from wetland-designated polygons in the sample frame that are consistent with the target population for this survey. **The target population for NWCA 2016 is tidal and nontidal wetlands of the conterminous U.S., including certain farmed wetlands not currently in crop production. The wetlands have rooted vegetation and, when present, open water less than 1 meter deep.** The NWCA uses a scientific definition for wetlands described by Cowardin et al. (1979) (Figure 2) that is broader than the regulatory definition of wetlands used in the federal Clean Water Act (CWA). A wetland’s jurisdictional status under state or federal regulatory programs does not affect a site’s status as target.¹

¹ Impacts to wetlands and other aquatic resources are regulated under the Clean Water Act when an aquatic resource is determined to be a “Water of the United States”. Jurisdictional Determinations are made on a case-by-case basis according to the definition found in 40 CFR 230.3(s). For more information please visit the website: <http://www.epa.gov/owow/wetlands/guidance/CWAwaters.html>.

COWARDIN DEFINITION OF WETLANDS

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 supports predominantly 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.

Figure 2. Cowardin definition of wetlands used in NWCA.

The latitude and longitude of each candidate POINT is listed in a Site Evaluation Spreadsheet distributed electronically by EPA to states, tribes, and contractors conducting field sampling for NWCA 2016. The spreadsheet contains a list of base (“Base11_RVT2”, “Base11”, “Base16”) and oversample (“Base16_OverSamp”) POINTS selected by the survey design in each state. The POINTS are listed on the spreadsheet in the order in which they were randomly selected. The first two POINTS are designated as revisit sites and each one is sampled on a second occasion at least two weeks after the first sampling event during the NWCA index period. POINTS designated as base sites are sampled once. All revisit and base POINTS must be evaluated and sampled unless determined to be non-sampleable for reasons identified later in this document. Oversample POINTS are replacement sites for revisit and base POINTS that cannot be sampled.

In addition to the Site Evaluation Spreadsheet, EPA will provide other resources to assist in site evaluation. This includes geospatial files (e.g., shapefiles, Google Earth KMZ files), soil and other site attribute information (e.g. protected land status). Upon request, EPA will distribute site maps at different scales on which the POINT locations are marked. The maps include the POINT location at scales appropriate for 1) generally locating the POINT and determining how to access it, and 2) beginning the initial evaluation on whether the POINT is sampleable (i.e., is it a wetland in the target population for the NWCA, is it accessible, and is the wetland encompassing the POINT large enough to sample).

Table 1. NWCA Target Wetland Types and cross-walk with US Fish & Wildlife Service (USFWS) Status & Trends (S&T) wetland categories and USFWS National Wetland Inventory (NWI) wetland classes.

NWCA Target Wetland Type Code	NWCA Target Wetland Type	S&T Wetland Categories* ¹	Included NWI Classes: Systems/Subsystems ²
EH	Estuarine Emergent	<i>E2EM</i> -Estuarine Intertidal Emergent	<i>Emergent and Aquatic Bed Classes in Estuarine/Intertidal Subsystems</i>
EW	Estuarine Shrub/Forest	<i>E2SS</i> - Estuarine Intertidal Forest or Shrub	<i>Forested and Scrub-Shrub Classes in Estuarine/Intertidal Subsystems</i>
PRL-EM	Palustrine, Riverine, and Lacustrine - Emergent	<i>PEM</i> - Palustrine Emergent	<i>Emergent Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</i>
PRL-UBAB	Palustrine, Riverine, and Lacustrine - Unconsolidated Bottom/Aquatic Bed	<i>PUB</i> - Palustrine Unconsolidated Bottom <i>PAB</i> – Palustrine Aquatic Bed	<i>Unconsolidated Bottom, Aquatic Bed Unconsolidated Shore, Rock Bottom, and Rocky Shore Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</i>
PRL-f	Palustrine, Riverine, and Lacustrine - Farmed	<i>Pf</i> - Palustrine farmed	<i>Farmed Modifier in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</i>
PRL-SS	Palustrine, Riverine, and Lacustrine - Shrub/Scrub	<i>PSS</i> - Palustrine Shrub	<i>Scrub-Shrub Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</i>
PRL-FO	Palustrine, Riverine, and Lacustrine - Forested	<i>PFO</i> - Palustrine Forested,	<i>Forested Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</i>

***IMPORTANT NOTE:** Status and Trends (S&T) category names DO NOT precisely equate to National Wetland Inventory (NWI) Codes for wetland type. S&T categories often aggregate multiple NWI types.

¹Dahland Bergeson (2009) Technical procedures for conducting status and trends of the Nation's wetlands. U.S. Fish and Wildlife Services, Division of Habitat and Resource Conservation, Washington, D.C., p 74.

²US Fish and Wildlife Service, National Wetlands Inventory, Wetland Classification Codes. <http://www.fws.gov/wetlands/Data/Wetland Codes.html>. Accessed December 2014.

2.0 DESKTOP EVALUATION

The primary purpose of desktop evaluation is to determine if the selected POINT is, or likely will be, in the target population during the 2016 index period using data that is easily obtainable and verifiable without the expense of a more intensive field visit. The focus of the desktop evaluation should be on ruling out sites that are clearly not part of the target population for reasons described below. **If information obtained during the desktop evaluation is not conclusive then a field visit will be necessary.**

A number of sources of information are useful for the desktop evaluation. These include aerial images, topographic maps, National Wetlands Inventory datasets, state, county, or tribal wetland resource data, the National Hydrography Dataset (NHD), soil maps, crop maps, road maps, personal and local knowledge, literature and scientific reports, and land ownership records. The use of these sources is at the discretion of the Evaluation Team but all information gathered will enhance POINT evaluation and help to ensure that proper POINTS are sampled.

The procedures for conducting the desktop evaluation are detailed in the steps below. Information found during the evaluation must be recorded on the NWCA2016_SiteEvalSpreadsheet_V1_Jan2016 (Site Evaluation Spreadsheet). EPA provides each state or entity conducting sampling for NWCA 2016 this Excel spreadsheet to fill out electronically. Instructions for completing the Site Evaluation Spreadsheet are provided in Appendix 1. **Site evaluation information must be completed for all revisit and base POINTS in the spreadsheet, as well as any oversample POINTS that are evaluated, regardless of whether the POINT is selected for sampling or not.** The information provided through the spreadsheet will contribute to the statistical analyses of data from the survey.²

Step 1. Locate the POINT on the most recent aerial imagery that can be obtained. Using this imagery and any supplemental sources of information, determine if the POINT is in or near (within 60 meters of) a wetland in the target population. If the image or other sources of information provide **conclusive** evidence that the POINT is **not** in or near a wetland in the target population, indicate that the site is **non-sampleable** and select the appropriate non-target category on the Site Evaluation Spreadsheet (see Appendix B for a list of sampleable/non-sampleable categories). Provide an explanation for your choice in the appropriate column of the spreadsheet detail any other explanatory information under the Additional Comments column, and follow the procedures for selecting an alternate POINT in Section 5.0. Otherwise, proceed to Step 2.

Step 2. Assess the predominant NWCA target wetland type for the POINT (see Table 1 for a description of wetland types).

2A. If the wetland type at the POINT falls under the Palustrine, Riverine, Lacustrine - Unconsolidated Bottom/Aquatic Bed (PRL-UBAB) NWCA target wetland type category, review the aerial image and other sources of information to determine whether there is **conclusive** evidence that the POINT (or area within 60 meters of it) is in a wetland that is:

² The use of the GRTS design allows for the correction of results to account for mapping errors (e.g., non-target POINTS) and for the dropping of POINTS in the target population because they are non-sampleable (e.g., access is denied).

1. Strictly used for an industrial, agricultural, or aquacultural purpose. Examples that support this assertion include visual evidence that the wetland is:
 - Strictly used to treat waste (e.g., wastewater lagoons, mining ponds);
 - Lined wholly with concrete or other manufactured, non-vegetated barrier;
 - An industrial cooling pond, livestock tank, fish pen or hatchery, commercial cranberry bog, etc.

OR;

2. Inundated by water greater than 1 meter in depth that covers most of the area (90% or more) within a 60-m radius of the POINT.

If either of these criteria are met, indicate that the site is non-sampleable and select the appropriate non-target category (see Appendix B for a list of sampleable/non-sampleable categories) on the Site Evaluation Spreadsheet). Provide an explanation for your choice in the appropriate column of the spreadsheet, detail any other explanatory information under the Additional Comments column, and follow the procedures for selecting an alternate POINT in Section 5.0. Otherwise, proceed to the next step.

- 2B.** If the wetland type at the POINT falls under the Palustrine, Riverine, Lacustrine Farmed (PRL-f) NWCA target wetland type category, review the aerial image and other sources of information and determine whether there is **conclusive** evidence that the wetland will be in active crop production during the NWCA index period. Factors to consider include:

- Recent evidence of tilling
- Confirmation of farm use by landowner
- Presence of row or close grown crops (corn, sugar cane, soybeans, etc.)
- Terraced land (or other evidence of rice cultivation)
- Other evidence uncovered during evaluation

If there is **conclusive** evidence the POINT (or area within 60 meters of it) **is** or will be in active crop production during the index period, indicate that the site is non-sampleable and select the appropriate non-target category (see Appendix B for a list of sampleable/non-sampleable categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail any other explanatory information under the Additional Comments column, and follow the procedures for selecting an alternate POINT in Section 5.0. Otherwise, proceed to the next step.

- Step 3.** Review maps, other collected information, or enlist the assistance of someone with personal knowledge of the location of the POINT to determine if it is physically accessible by Field Crews and safe to sample.

In order to achieve the most robust results possible with the probabilistic sampling design, every effort must be made to sample the base points generated by the design. POINTS should not be rejected based on inconvenience in access. POINTS that require lengthy hikes from road access or the use of alternative vehicles (e.g., air boats, canoes) should not

automatically be rejected. However, safety concerns for the field crew and permanent physical barriers (e.g., cliffs) that prevent access are legitimate reasons to reject POINTS.

If these sources of information indicate **conclusively** that the POINT (or area within 60 meters of it) **is not** accessible, indicate that the site is non-sampleable and select the appropriate non-target category (see Appendix B for a list of sampleable/non-sampleable categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail any other explanatory information under the Additional Comments column, and follow the procedures for selecting an alternate POINT in Section 5.0. Otherwise, proceed to Step 4.

Step 4. Review maps, other collected information, or enlist the assistance of someone with personal knowledge of the location of the POINT to determine if an Assessment Area (AA) encompassing the POINT (or within 60 meters of it) can be established. The following criteria must be met to establish a sampleable AA:

- i. The AA is between 0.1 and 0.5 hectares in area
- ii. AA is at least 20 meters wide
- iii. AA contains less than 10% unsampleable area (unsampleable area is defined as upland, non-target wetland types, standing water greater than 1 meter in depth, or soft substrate that is unsafe or impossible to sample effectively)
- iv. AA does not cross any hydrogeomorphic (HGM) boundaries (i.e., the AA contains only one HGM type)³.

If the sources of information indicate **conclusively** that an AA cannot be established, indicate that the site is non-sampleable and select the appropriate non-target category (see Appendix B for a list of sampleable/non-sampleable categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail any other explanatory information under the Additional Comments column, and follow the procedures for selecting an alternate POINT in Section 5.0.

If the POINT is determined to be **sampleable**, follow the procedures for obtaining permission to access the POINT in Section 3.0. If you are certain that the POINT is in the target population, accessible, and the wetland encompassing it is large enough to sample, then the POINT may be scheduled for sampling during the NWCA index period. Make sure to document any relevant site access issues or special requirements uncovered during desktop evaluation on the Site Evaluation Spreadsheet.

If the status of the POINT is **uncertain** after desktop evaluation, then a field evaluation (Section 4.0) should be conducted, after first obtaining permission to access the location of the POINT.

Information and data sources used in the desktop evaluation should be retained as part of the project record and incorporated into the site packet for each POINT. If you have questions about whether information should be deemed conclusive evidence of a POINT's status, please contact your EPA Regional NWCA Coordinator and/or Gregg Serenbetz (contact information is provided in Appendix G).

³ Refer to Chapter 3 of the NWCA 2016 Field Operations Manual for detailed information on establishing the AA. Reference cards listing criteria for sampleable AAs, examples of HGM boundaries or mixes of types to avoid, and a key to assist in HGM classification are provided in Appendix H.

3.0 OBTAINING PERMISSION TO ACCESS AND SAMPLE CANDIDATE SITE

Landowner permission is required to traverse, access, and sample any POINT that falls on privately-owned land. Each Field Crew is responsible for obtaining the permissions necessary to access their assigned sampling POINTS. Field Crews should follow protocols already established by their State, Tribe, or organization to obtain permission to access private land. If no protocols exist, Field Crews should employ the most personal contact practicable, enlisting the aid of any partners, groups or organizations that may be able to provide meaningful assistance (e.g., state or tribal staff, local cooperative extension staff, USGS) and potentially be more effective at obtaining landowner permission. **It is vital for the integrity of the survey to sample all POINTS that are in the target population whether they fall on public or private land. All efforts should be made to obtain permission to sample POINTS on private land.**

An in-person visit is an effective way to establish contact with landowner(s) and could be incorporated into field evaluation of the POINT (see Section 4.0). Past surveys have found that landowners are more likely to grant permission if they meet with a study representative than if their only contact is through a phone call or letter. If a personal visit cannot be made, a phone call is considered the best alternative. If attempts to reach the landowner(s) through an in-person visit or telephone call are unsuccessful, a letter should be mailed with a fact sheet on the survey and a permission slip for the landowner(s) to return. Included in this package should be a return-addressed and postage-paid envelope with a specific date by which the permission slip should be returned. See Appendix E for an example of a permission letter, a letter sent to landowners in the Gulf of Mexico Pilot Assessment, and a sample landowner permission slip. A signed permission slip can be important documentation to have when visiting the site for field evaluation or sampling. A survey fact sheet providing basic information on the NWCA for landowners is included in Appendix F.

Landowner information can be obtained from the county tax assessor's office. Tax assessor maps display landowner boundaries, addresses and, oftentimes, phone numbers. This information enables the Field Crew to contact landowners before accessing the POINT and will identify the landowners of parcels Field Crews may have to traverse to reach the POINT. For some counties, these records are available through a publicly-accessible electronic database that is searchable online. For other counties, it may require a visit to the assessor's office to manually search these records.

Field Crews will also need to be aware of and follow any special conditions and requirements for accessing and sampling on state, tribal, or federal lands. POINTS that fall on federal or tribal lands will be identified when the site lists are distributed to states and tribes. Field Crews should work with appropriate state, tribal, and federal agencies to determine whether any permits or special conditions apply to these lands. EPA will provide assistance to Field Crews in coordinating efforts with federal land management agencies and with state and tribal agencies as needed.

4.0 FIELD EVALUATION

The components of the field evaluation of the POINT are similar to those outlined for the desktop evaluation and the primary purpose is the same – to determine if the selected POINT is, or likely will be, in the NWCA target wetland population during the 2016 sample period, accessible by a Field Crew under the constraints of the NWCA, and within a wetland where an Assessment Area (AA) encompassing the POINT can be established. Information obtained during the field evaluation must be documented on the Site Evaluation Spreadsheet. A POINT Verification Form (PV-1) should also be completed for every POINT assessed in the field, regardless of whether it is ultimately scheduled for sampling (see Appendix C for a copy of the PV-1 Form). Using this form during field reconnaissance provides an easy and consistent way to record and provide information about accessing the site (e.g., directions, access constraints, special access requirements, etc.) to the Field Crew who will ultimately conduct the field sampling. When using this form for field evaluation done prior to sampling, make sure to mark the bubble labeled “Recon” next to VISIT at the top of the form.

The Evaluation Team that conducts the field evaluation should consist of at least 2 people, and one should have experience in wetland delineation. An important component of the field evaluation will be to determine if the POINT is in a wetland⁴, and if not, to determine if it is possible to shift the POINT to a nearby area that is a wetland (see Section 4.2). This will be achieved more easily and quickly if one member of the Evaluation Team is experienced in wetland delineation and can recognize wetland characteristics in a variety of situations.

4.1 POINT VERIFICATION

The first task in field evaluation of the POINT is to verify that the site is accessible, the POINT is in the target wetland population identified for the NWCA, and an Assessment Area can be established that encompasses the POINT. The following steps document the procedures to accomplish this task.

- Step 1.** Record a detailed description of the route taken to access the POINT (roads, trails, etc.) on the PV-1 Form starting from an appropriate central road intersection. In addition, note any access issues or requirements (locked gates, permits, etc.). This information will be provided to the Field Crew as part of the site packet used on the day of sampling.
- Step 2.** If permission to access the POINT has not yet been obtained, meet with respective landowner(s) to discuss the survey and access to the POINT. This is also a good opportunity to get information about the area that includes the POINT from the landowner. In particular, if it is a farmed wetland, ask if the area will be in active crop production during the 2016 index period.
- Step 3.** Navigate to the POINT and verify the latitude and longitude of the POINT using a GPS receiver set to reference NAD 83. Use at least one other map source to confirm your location. If it is not possible or practicable to navigate to the exact location of the point due to high water (over 1 meter in depth), safety, or other reason, detail this on the PV-1 Form and determine whether this is likely to prevent sampling during the NWCA index period. Take a digital picture to further document conditions at the POINT. The picture(s) should be

⁴ The NWCA uses a scientific definition for wetlands described by Cowardin et al. (1979) (Figure 2) that is broader than the regulatory definition of wetlands used in the federal Clean Water Act (CWA).

representative of the prevailing conditions at the POINT. Digital pictures should be saved electronically and catalogued with NWCA site and date evaluated information to allow for future retrieval.

Step 4. Assess the predominant NWCA target wetland type for the POINT (see Table 1 for a description of wetland types). If the POINT is not a wetland or is not one of the NWCA target wetland types described in Table 1 proceed to Step 6. Otherwise continue to Step 4A.

4A. If the wetland type at the POINT falls under the Palustrine, Riverine, Lacustrine - Unconsolidated Bottom/Aquatic Bed (PRL-UBAB) NWCA target wetland type category, document any evidence that the POINT is in a wetland that is:

1. Strictly used for an industrial, agricultural, or aquacultural purpose. Examples that support this assertion include visual evidence that the wetland is:
 - Strictly used to treat waste (e.g., wastewater lagoons, mining ponds);
 - Lined wholly with concrete or other manufactured, non-vegetated barrier;
 - An industrial cooling pond, livestock tank, fish pen or hatchery, commercial cranberry bog, etc.

OR;

2. Inundated by water greater than 1 meter in depth that covers most of the area (90% or more) within a 60-m radius of the POINT.

4B. If the wetland type at the POINT falls under the Palustrine, Riverine, Lacustrine Farmed (PRL-f) NWCA target wetland type category, document any evidence that the wetland will be in active crop production during the NWCA index period. Factors to consider include:

- Recent evidence of tilling
- Confirmation of farm use by landowner
- Presence of row or close grown crops (corn, sugar cane, soybeans, etc.)
- Terraced land (or other evidence of rice cultivation)
- Other evidence uncovered during evaluation

If evidence of any of the items listed in Step 4A and 4B is confirmed, then the POINT is not in the target wetland population for the NWCA. Proceed to Step 6. Otherwise, continue to the next step.

Step 5. Verify that an Assessment Area (AA) can be established for the POINT. Chapter 3 of the Field Operations Manual provides full details on the establishment of the AA and should be used as a reference when completing this step.

Select the aerial photo from the site map packet, or another image that best depicts the setting at the POINT, and use this to annotate details on AA establishment. This annotated image will be provided to the Field Crew sampling the site to facilitate their work on the day of sampling.

Using the maps provided as a guide and the information you find at the POINT determine if an AA can be established that meets the following criteria:

- i. AA is between 0.1 and 0.5 hectares in area
- ii. AA is at least 20 meters wide
- iii. AA contains less than 10% unsampleable area (unsampleable area is defined as upland, non-target wetland types, standing water greater than 1 meter in depth, or soft substrate that is unsafe or impossible to sample effectively)
- iv. AA does not cross any hydrogeomorphic (HGM) boundaries (i.e., the AA contains only one HGM type)⁵.

If an AA can be established, depict on the map the most appropriate layout utilizing the Key to AA Layouts provided in the Field Operations Manual (Reference Card AA-1) and schedule the POINT for sampling. If an AA cannot be established, proceed to the next step.

Step 6. If the information gathered in the previous steps indicates that the designated POINT is non-sampleable, determine whether it is possible to shift the POINT to a place within 60 meters of the original POINT that is sampleable by following the procedures outlined in Section 4.2.

Information, data sources, and pictures used in field evaluation should be retained as part of the project record and incorporated into the site packet for each POINT. If you have questions about whether information is conclusive evidence of a POINT's status, please contact your EPA Regional NWCA Coordinator and/or Gregg Serenbetz (contact information is provided in Appendix G).

4.2 SHIFTING THE POINT

If during POINT verification it is determined that the original POINT cannot be sampled because the POINT is inaccessible, falls in a non-target wetland, or an Assessment Area cannot be established, the next task is to determine if the POINT can be shifted to a sampleable wetland that lies within 60 meters of the original POINT.⁶ The following steps document the procedures to accomplish this task:

Step 1. Navigate to the nearest spot that is the same NWCA wetland type listed for the original POINT where a sampleable AA can be established. Using a range finder, GPS, or measuring tape, determine if this is within 60 meters of the original POINT. If it is, record the GPS coordinates for the shifted POINT in the Comments section of the PV-1 Form or in another way that ensures the Field Crew has the shifted POINT coordinates when they sample the site. On the day of sampling, the shifted POINT coordinates will be officially recorded on the Assessment Area Establishment Form (AA-1). Take a digital picture to further document the prevailing conditions at the POINT. Digital pictures should be saved electronically and catalogued with NWCA site and date evaluated information to allow for future retrieval.
Field evaluation is complete and the POINT should be scheduled for sampling.

⁵ Refer to Chapter 3 of the NWCA 2016 Field Operations Manual for detailed information on establishing the AA. Reference cards listing criteria for sampleable AAs, examples of HGM boundaries or mixes of types to avoid, and a key to assist in HGM classification are provided in Appendix H.

⁶ 60 meters is the distance that encompasses a roughly ± 1 second latitude/longitude degree mapping or GPS error in the location of the POINT.

- Step 2.** If there is not a wetland of the same NWCA type listed for the original POINT within 60 meters, navigate to the nearest spot that is a wetland in the NWCA target population where a sampleable AA can be established. Using a range finder, GPS, or measuring tape determine if this is within 60 meters of the original POINT. If it is, record the GPS coordinates for the shifted POINT in the Comments section of the PV-1 Form or in another way that ensures the Field Crew has the shifted POINT coordinates when they sample the site. On the day of sampling, the shifted POINT coordinates will be officially recorded on the Assessment Area Establishment Form (AA-1). Take a digital picture to further document the prevailing conditions at the POINT. Digital pictures should be saved electronically and catalogued with NWCA site and date evaluated information to allow for future retrieval. **Field evaluation is complete and the POINT should be scheduled for sampling.**
- Step 3.** If there is not a wetland in the target population within 60 meters of the original POINT, document this conclusion on the PV-1 Form and indicate that the site is non-sampleable and select the appropriate non-target category (see Appendix B for a list of sampleable/non-sampleable categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail any other explanatory information under the Additional Comments column, and follow the procedures for selecting an alternate POINT in Section 5.0. Field evaluation is complete.

Information, data sources, and pictures used in field evaluation should be retained as part of the project record and incorporated into the site packet for each POINT. If you have questions about whether information should be deemed conclusive evidence of a POINT's status, please contact your EPA Regional NWCA Coordinator and/or Gregg Serenbetz (contact information is provided in Appendix G).

5.0 SELECTING ALTERNATE POINTS

The list of POINTS randomly generated for the NWCA is organized in the NWCA 2016 Site Evaluation Spreadsheet, provided to each state and contract crew by EPA. The spreadsheet contains a list of base (“Base11_RVT2”, “Base11”, “Base16”) and oversample (“Base16_OverSamp”) POINTS in the state. The POINTS are listed on the spreadsheet in the order in which they were randomly selected. The first two base POINTS are designated as revisit sites and each POINT is sampled on two separate occasions at least two weeks apart during the NWCA index period. The other POINTS designated as base sites (Base11, Base16) are sampled once. The order of the sites on the list MUST BE maintained. All base sites (Base11_RVT2, Base11, Base16) must be evaluated, and then sampled unless determined to be non-sampleable for one of the following reasons:

- i. The POINT is inaccessible (due to safety, persistent deep water, or other physical barriers),
- ii. Permission to access the POINT has been denied,
- iii. The POINT is not in a target wetland, nor can it be shifted to a nearby wetland that is,
- iv. An Assessment Area cannot be established for the POINT.

Base sites that are determined to be non-sampleable are replaced by oversample sites (Base16_OverSample), beginning with the first oversample site on the list. If a designated revisit POINT (Base11_RVT2) is determined to be non-sampleable, then it is replaced by the next base POINT on the state list and the first oversample POINT (Base16_OverSamp) on the list becomes a base POINT.

Figure 4 is provided to help illustrate the process for replacing POINTS within a state. For example, if NWCA16-1001 is determined to be non-sampleable, then:

1. The first Base11 POINT, NWCA16-1003, becomes a revisit POINT; and
2. The first Base16_OverSamp POINT on the list, NWCA16-1018, is added as a replacement base POINT.

It does not matter that these are different NWCA wetland types. If NWCA16-1018 is also determined to be non-sampleable, then it is replaced by the next oversample POINT, NWCA16-1019. As POINTS are determined to be non-sampleable, Evaluation Teams will continue to work with the Designated EPA Contact to replace them with oversample POINTS by selecting the next site on the list, irrespective of NWCA wetland type.

SITE_ID	SITE_ID(2011)	Longitude	Latitude	Panel	NWCA Frame Wetland Code
NWCA16-1001	NWCA11-1003	-88.11413662	30.38434018	Base11_RVT2	PSS
NWCA16-1002	NWCA11-1002	-87.7289122	30.26178475	Base11_RVT2	E2EM
NWCA16-1003	NWCA11-1027	-87.97703538	30.77236983	Base11	E2EM
NWCA16-1004	NWCA11-1005	-87.97994429	30.77328239	Base11	E2SS
NWCA16-1005	NWCA11-1015	-87.89575308	30.94791107	Base11	PFO
NWCA16-1006	NA	-87.9049208	30.43070776	Base16	PFO
NWCA16-1007	NA	-85.07627149	31.14300235	Base16	PFO
NWCA16-1016	NA	-87.97694433	30.78342738	Base16	PFO
NWCA16-1017	NA	-86.03244037	33.93268236	Base16	PEM
NWCA16-1018	NA	-85.30809094	32.30389262	Base16_OverSamp	PFO
NWCA16-1019	NA	-88.22807894	32.22228491	Base16_OverSamp	PFO
NWCA16-1020	NA	-88.24797232	33.64436007	Base16_OverSamp	PFO

Figure 3. Example list of state sites from NWCA Site Evaluation Spreadsheet.

If the site will require extreme resources and / or considerable time to sample, contact the NWCA Project Team (contact information below) for approval before dropping the site. Consider only physical accessibility, and not access or sampling permission (i.e., evaluate this question with the assumption that permission will be granted).

Information on POINTS determined to be non-sampleable and the selection of alternate POINTS to replace them is reported to EPA and the NWCA Field Logistics Contractor throughout the period of site evaluation and field sampling (see Section 6.0 for specific details). EPA and the Field Logistics Contractor will review the information to:

- i. Confirm that the correct process was used to select the alternate POINT,
- ii. Confirm which Field Crew is responsible for sampling the alternate POINT (if multiple organizations are sampling within state boundaries),
- iii. Report the replacement of revisit and base POINTS with oversample POINTS to appropriate Field Crew(s) and agencies AND to the EPA Project Team.

EPA Project Team:

**Gregg Serenbetz (Serenbetz.gregg@epa.gov, 202-566-1253),
Colleen Mason (mason.colleen@epa.gov, 202-343-9641)
Chris Faulkner (faulkner.chris@epa.gov, 202-566-1185), or**

6.0 REPORTING SITE EVALUATION INFORMATION TO EPA

It is critical that Evaluators and Field Crews report information obtained during the site evaluation process to EPA in a timely manner throughout the period of site evaluation and field sampling in 2016. This information is used for the statistical analysis in the final report. The following forms must be returned to EPA for all POINTS that are evaluated:

NWCA Site Evaluation Spreadsheet: This spreadsheet must be filled out for ALL base POINTS (Base11_RVT2, Base11, Base16) on the state list regardless of whether they are ultimately sampled. It must also be completed for ALL oversample POINTS evaluated as replacements. Please upload completed spreadsheets to the EPA SharePoint site under the folder **NWCA/NWCA 2016/2016 NWCA Site Evaluation Materials/State and Contractor Submitted Site Evaluation Spreadsheets** prior to the 2016 field season. The file name for the upload must include the state abbreviation and the date of upload. Please adhere to the following file naming format:

NWCA2016_SiteEvaluationSpreadsheet_ST_YYYYMMDD.

Subsequent uploads of the site evaluation spreadsheet should be made in a timely manner throughout the field season as additional sites are evaluated and dropped. A final spreadsheet, complete for ALL evaluated sites, beginning with the first site on the state list and ending with the last site that is sampled, must be uploaded to the EPA SharePoint site two weeks after the completion of field sampling in the state. To indicate the final spreadsheet file, please use the following file naming format:

NWCA2016_SiteEvaluationSpreadsheet_ST_YYYYMMDD_FINAL.

NWCA POINT Verification Form (PV-1): This form should be completed for ALL POINTS that are evaluated in the field, regardless of whether they are ultimately sampled. Evaluators should retain all PV-1 Forms completed for "Recon" visits and keep with the site packet. PV-1 Forms completed during a sampling visit will be sent to the NARS IM team in batches with other field forms as directed in the Field Operations Manual.

7.0 LITERATURE CITED

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U.S. EPA. 2016. National Wetland Condition Assessment 2016: Field Operations Manual. EPA-843-R-15-007. U.S. Environmental Protection Agency, Washington D.C.

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Appendix A: Instructions for filling out NWCA 2016 Site Evaluation Spreadsheet

INSTRUCTIONS FOR COMPLETING NWCA 2016 SITE EVALUATION SPREADSHEET

1. Save spreadsheet using the following format: NWCA2016_SiteEvalSpreadsheet_V1_Jan2016_ST_MMDDYY where "ST" is your state abbreviation and "MMDDYY" is the current date.
2. Fill out the required information for each evaluated site in the 'MAIN' worksheet tab. NOTE that when you first open the tab there will not be any listed sites. You must select your state first to generate the list of NWCA 2016 sites for your state in the spreadsheet. The table below provides a description of each field and the required information needed to be provided by the evaluator.

IMPORTANT REMINDER:

The order of the sites on the list MUST BE maintained. All base sites (Base11_RVT2, Base11, Base16) must be evaluated, and then sampled unless determined to be non-sampleable. Base sites that are determined to be non-sampleable are replaced by oversample sites (Base16_Oversample), beginning with the first oversample site on the list. EPA must receive information for ALL evaluated sites, beginning with the first site on the state list and ending with the last site that is sampled. Please contact your EPA Regional Coordinator or Gregg Serenbetz (serenbetz.gregg@epa.gov; 202-566-1253) if you have any questions.

COLUMN / FIELD IN MAIN TAB	DESCRIPTION	REQUIRED ACTION BY EVALUATOR
Select a State	Drop down list to select sites in a specific state	Select appropriate state
SITE_ID	NWCA 2016 site identification number	None
SITE_ID(2011)	NWCA 2011 site identification number if POINT was sampled in 2011	None
Longitude	Longitude in decimal degrees of POINT from design file	None
Latitude	Latitude in decimal degrees of POINT from design file	None
Panel	Type of site (e.g., revisit, base, or oversample) from design file	None
NWCA Frame Wetland Code	Wetland code from the 2016 sample frame	None
NWCA Target Wetland Type	Target wetland type for purposes of NWCA 2016 analysis and reporting	None
Point Sampleable?	Drop down list to indicate whether POINT is sampleable	Select Yes if sampleable, No if not
Sampleable/Non-sampleable Category	Drop down list to indicate the sampleable / non-sampleable category	<p>If sampleable, indicate either: Point Sampleable (POINT is in target wetland and sampleable AA can be setup) Shifted Point Sampleable (POINT can be shifted to location where sampleable AA can be setup)</p> <p>If non-sampleable, provide the appropriate non-sampleable category: No Access (permission denied or permanently inaccessible) AA Cannot Be Established (due to size, unsampleable area, or HGM constraints) Non-Target (not in target wetland population)</p>

<p>Reason (Non-sampleable) or Wetland Type (Sampleable)</p>	<p>Drop down list to indicate the reason it is non-sampleable OR the wetland type if it is sampleable</p>	<p>If non-sampleable, select the appropriate reason for the respective category:</p> <p>No Access Categories: Access permission denied by site owner Permanently inaccessible due to obstacles going to or at site (see Site Evaluation Guidelines)</p> <p>AA Cannot Be Established Categories: Sampleable area too small (see Site Evaluation Guidelines) Unsampleable area greater than 10% of AA (see Site Evaluation Guidelines) Sampleable area crosses hydrogeomorphic (HGM) boundary (see Site Evaluation Guidelines)</p> <p>Non-Target Categories: Not a wetland (due to map error, development activity since initial mapping, etc) Non-target wetland type (not one of the NWCA target wetland types-see 'NWCA TARGET WET TYPES') Active crop production during index period (see Site Evaluation Guidelines) Strictly used for industrial/agricultural/aquacultural purpose (see Site Evaluation Guidelines) Inundated by water > 1 m in depth (over 90% of area 60m around pt) Other (if you feel reason is not covered in other choices, select AND describe in next field)</p> <p>If sampleable, provide the predominant wetland type of the AA: EH - Estuarine Emergent EW - Estuarine Shrub/Forest PRL-EM - Palustrine, Riverine, and Lacustrine Emergent PRL-SS - Palustrine, Riverine, and Lacustrine Shrub/Scrub PRL-FO - Palustrine, Riverine, and Lacustrine Forested PRL-UBAB - Palustrine, Riverine, and Lacustrine Unconsolidated Bottom/Aquatic Bed PRL-f - Palustrine, Riverine, and Lacustrine Farmed</p>
<p>Explain Non-sampleable Choice</p>	<p>Field to enter information explaining why POINT is non-sampleable</p>	<p>Provide further information to explain non-sampleable choice. For example, if the reason POINT is non-sampleable is active crop production during index period, note any evidence used to determine this (e.g., recent evidence of tilling, confirmation by farmer, etc).</p>
<p>Name</p>	<p>Field to enter name of person who conducted evaluation</p>	<p>Enter evaluator's name</p>
<p>Affiliation</p>	<p>Field to enter organization or other affiliation of person who conducted evaluation</p>	<p>Enter evaluator's affiliation</p>
<p>Phone number</p>	<p>Field to enter phone number of person who conducted evaluation</p>	<p>Enter evaluator's phone number</p>
<p>Email address</p>	<p>Field to enter email address of person who conducted evaluation</p>	<p>Enter evaluator's email</p>
<p>Rationale</p>	<p><i>Only used in the extremely RARE situation that EPA allows a POINT to be moved beyond 60 meters. Rationale for move provided in this field.</i></p>	<p><i>Do not fill out unless needed (in consultation with EPA)</i></p>
<p>Approved by</p>	<p><i>Only used in the extremely RARE situation that EPA allows a POINT to be moved beyond 60 meters. Name of EPA Official approving move is entered here.</i></p>	<p><i>Do not fill out unless needed (in consultation with EPA)</i></p>
<p>Approval Date</p>	<p><i>Only used in the extremely RARE situation that EPA allows a POINT to be moved beyond 60 meters. Date of approval by EPA is entered here.</i></p>	<p><i>Do not fill out unless needed (in consultation with EPA)</i></p>

Distance from Original Point	<i>Only used in the extremely RARE situation that EPA allows a POINT to be moved beyond 60 meters. Distance in meters from original design POINT is entered here.</i>	<i>Do not fill out unless needed (in consultation with EPA)</i>
Longitude	<i>Only used in the extremely RARE situation that EPA allows a POINT to be moved beyond 60 meters. Longitude (in decimal degrees) of moved POINT is entered here.</i>	<i>Do not fill out unless needed (in consultation with EPA)</i>
Latitude	<i>Only used in the extremely RARE situation that EPA allows a POINT to be moved beyond 60 meters. Latitude (in decimal degrees) of moved POINT is entered here.</i>	<i>Do not fill out unless needed (in consultation with EPA)</i>
Additional Comments	Field to enter any additional comments about the evaluation of the POINT	None unless there is additional information evaluator would like to add

Appendix B: Sampleable/Non-sampleable Categories

Use these categories as a guide to help determine the sampling status of the POINT.

Sampleable Categories

- EH - Estuarine Emergent
- EW - Estuarine Shrub / Forest
- PRL-EM – Palustrine, Riverine, and Lacustrine Emergent
- PRL-SS – Palustrine, Riverine, and Lacustrine Scrub Shrub
- PRL-FO – Palustrine, Riverine, and Lacustrine Forested
- PRL-UBAB – Palustrine, Riverine, and Lacustrine Unconsolidated Bottom / Aquatic Bed
- PRL-f – Palustrine, Riverine, and Lacustrine farmed (not currently in active crop production)

Non-Sampleable - No Access Categories

- Access permission denied
- Permanently inaccessible (e.g., permanent physical barriers, dangerous conditions)

Non-Sampleable – Non-Target Categories

- Not a wetland (due to map error, recent conversion to upland, etc.)
- Non target wetland type (e.g., estuarine and marine intertidal aquatic beds)
- Active crop production during index period (e.g., recent evidence of tilling, confirmation of farm use by landowner)
- Strictly used for an industrial/agricultural/aquacultural purpose (e.g., strictly used to treat waste, lined with concrete or other manufactured, non-vegetated barrier)
- Inundated by water > 1 m in depth (over 90% of 60 m around pt)
- Other. Must explain in Additional Comments on Evaluation Spreadsheet and Form.

Non-Sampleable – Assessment Area Cannot Be Established Categories

- Sampleable area too small (sampleable area is less than 0.1 hectare or less than 20 meters in width)
- Unsampleable area greater than 10% of AA (more than 10 % of the AA is non-target or unsafe to sample)
- Sampleable area crosses a hydrogeomorphic (HGM) boundary (e.g., AA contains more than one HGM type or includes a tributary to the reach of the river or stream associated with the POINT)

Appendix C: Point Verification Form

FORM PV-1: NWCA 2016 POINT VERIFICATION FORM (Front) Reviewed by (Initial): _____	
SITE ID: NWCA16-	VISIT: <input type="radio"/> Recon <input type="radio"/> 1 <input type="radio"/> 2 DATE: ____/____/2016
EVALUATOR: _____	AFFILIATION: _____
POINT LOCATION AND ACCESSIBILITY	
Directions to POINT:	
POINT verified by (fill in all that apply): <input type="radio"/> GPS <input type="radio"/> Topo Map <input type="radio"/> Aerial	
<input type="radio"/> Other (describe): _____	
Note any difficulties accessing site	
<input type="radio"/> Dense Vegetation <input type="radio"/> Steep/Unstable terrain <input type="radio"/> Deep Water <input type="radio"/> Livestock	
<input type="radio"/> Other (describe): _____	
Special Access Requirements: <input type="radio"/> Locked Gates <input type="radio"/> Special Permits	
<input type="radio"/> Other (describe): _____	
IS POINT SAMPLEABLE?	
<input type="radio"/> YES <input type="radio"/> original POINT is sampleable (fill in category below) <input type="radio"/> POINT could be shifted ≤60m (fill in category below AND enter documentation for shifted point on Form AA-1 at time of sampling). NWCA Wetlands Target Type INCLUDED in target population: <input type="radio"/> EW - Estuarine Shrub/Forest <input type="radio"/> EH - Estuarine Emergent <input type="radio"/> PRL-EM - Palustrine, Riverine, and Lacustrine Emergent <input type="radio"/> PRL-SS - Palustrine, Riverine, and Lacustrine Scrub/Shrub <input type="radio"/> PRL-FO - Palustrine, Riverine, and Lacustrine Forested <input type="radio"/> PRL-UBAB - Palustrine, Riverine, and Lacustrine Unconsolidated Bottom/Aquatic Bed <input type="radio"/> PRL-f - Palustrine, Riverine, and Lacustrine Farmed (not currently in active crop production)	<input type="radio"/> NO, fill in category below NO, IS/MPLEABLE - ON THIS VISIT <input type="radio"/> Non-Sampleable (add reasons to comment section on back) <input type="radio"/> Temporarily Inaccessible (add reasons to comment section on back) NON-SAMPLEABLE - NO ACCESS CATEGORIES <input type="radio"/> Access permission denied <input type="radio"/> Permanently inaccessible (add reasons to comment section on back) NON-SAMPLEABLE - AA CAN'T BE ESTABLISHED <input type="radio"/> Sampleable area too small <input type="radio"/> Unsampleable area greater than 10%, includes water >1m deep <input type="radio"/> Sampleable area crosses hydrogeomorphic (HGM) boundary NON-SAMPLEABLE - NON-TARGET CATEGORIES <input type="radio"/> Not a wetland <input type="radio"/> Non-target wetland type <input type="radio"/> Active crop production during index period (explain) <input type="radio"/> Strictly used for an industrial/agricultural/aquacultural purpose (explain) <input type="radio"/> Inundated by water >1m in depth (over 90% of area 60m around pt) <input type="radio"/> Other (describe) _____ Provide any additional information in the comments section on the back of this form.
03/04/2016 PV-1 NWCA 2016 Point Verification Form	7285142852

FORM PV-1: NWCA 2016 POINT VERIFICATION FORM (Back)		Reviewed by (initial): _____
Site ID: <u> NWCA16- </u>	DATE: <u> </u> / <u> </u> / <u> 2 0 1 6 </u>	
GENERAL ASSESSMENT COMMENTS		
<p>Record any additional information and observations of the POINT or surrounding area. Potential information to include: general observations of biotic integrity, vegetation diversity, presence of wildlife, land uses, potential stressors not otherwise identified, local anecdotal information, or any other pertinent information about the site or surrounding area. Record any observations that may be useful for future data interpretation.</p>		
<p style="text-align: center; color: gray; font-size: 2em; opacity: 0.3; transform: rotate(-30deg);">DRAFT - do not use in field</p>		
03/04/2016 PV-1 NWCA 2016 Point Verification Form	1604142851	

Appendix D: Examples of Site Maps Provided by EPA upon Request

National Wetland Condition Assessment 2016 NWCA16-1007 Site Map



Scale = 1:1,750 40 20 0 40 80 120 160 Meters

County, State: Houston County, AL
Latitude (dec deg): 31.143002
Longitude (dec deg): -85.076271
Panel: Base16
Wetland Type (from design): PFO
NWCA Wetland Group: PRLW
Ownership (from PAD):
Agency (from PAD):
Name (if applicable):

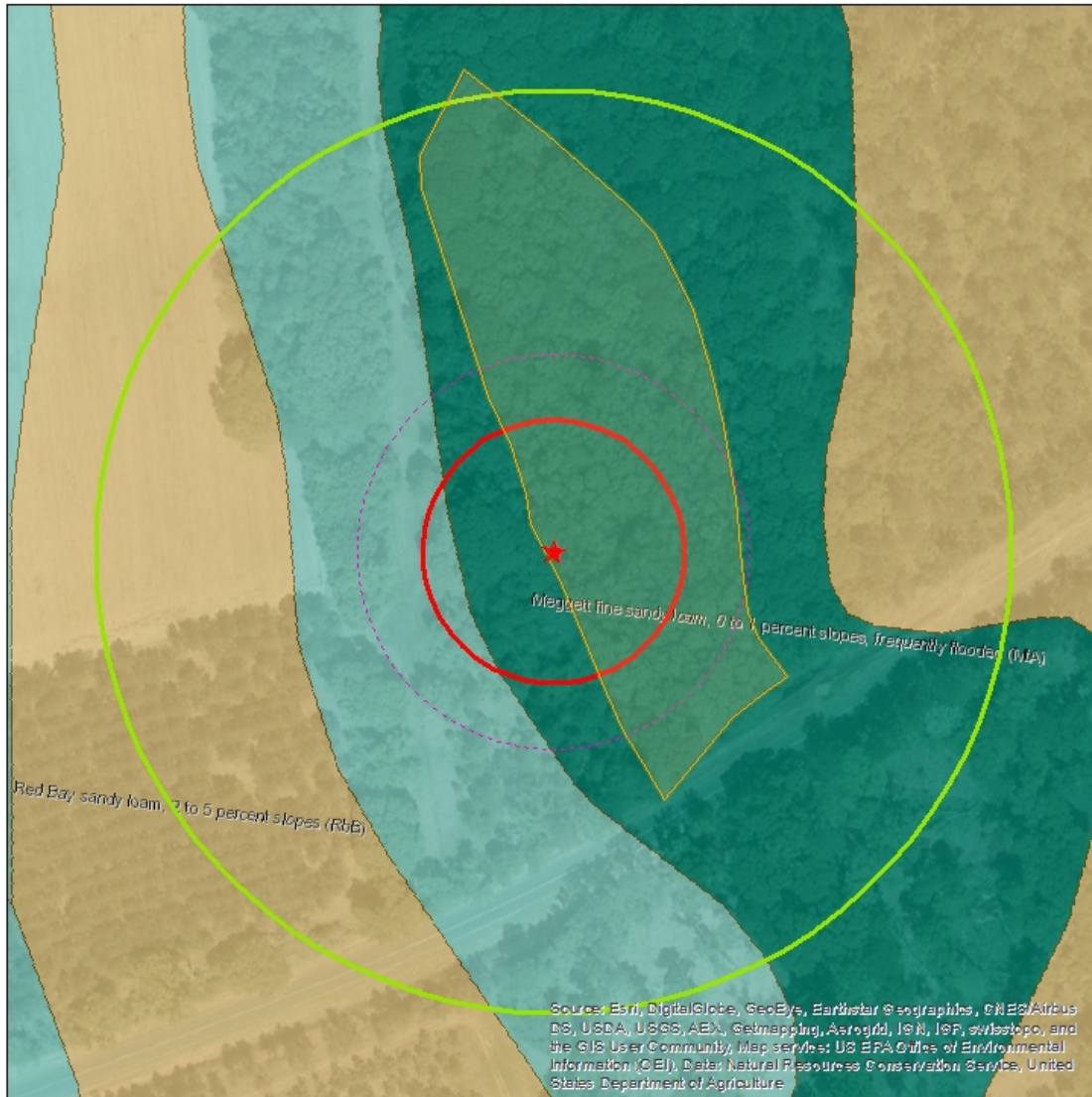
LEGEND

- ★ POINT
- 40m radius (standard AA layout)
- 140m radius (standard Buffer area)
- 60m radius (potential Shifted AA zone)
- ⬡ wetland boundary (for type selected in design)



National Wetland Condition Assessment 2016

NWCA16-1007 Soil Information



Scale = 1:1,750 40 20 0 40 80 120 160 Meters

County, State: Houston County, AL
County FIPS Code: 069
Latitude (dec deg): 31.143002
Longitude (dec deg): -85.076271
Soil Survey Area Map Unit: AL069, Mta
Map Unit Key (for Form S-1): 607295
LRR: P
MLRA: 133A

LEGEND

- ★ POINT
- 40m radius (standard AA layout)
- 140m radius (standard Buffer area)
- 60m radius (potential Shifted AA zone)
- wetland boundary (for type selected in design)



Appendix E: Examples of Landowner Permission Letters and Forms

[Date]

Dear Landowner:

The U.S. Environmental Protection Agency, in cooperation with State agencies, is conducting an ecological assessment of wetlands across the United States. A computer was used to randomly select sampling locations throughout the United States. A total of 904 wetland sites were selected for sampling in 2016. We will be conducting a site survey that will last 5-6 hours and will require no permanent structures. Our sampling area will be small, consisting of a 40-meter radius circle around the computer-selected point. The primary focus of the survey is to record observations about plant species, soil, hydrology, and water chemistry to assess the health of wetlands nationally. A minimal amount of water, soil, and vegetation will be collected from the site. The data collected is to be used for scientific purposes and copies of the final reports will be provided to landowners upon request.

One or more of the 904 randomly selected sites [is located on your property] / [requires a field crew to cross your property in order to reach the site]. We are contacting you prior to visiting the site to obtain your permission (form enclosed) to access the sampling site. We have enclosed a copy of a map(s) with the site(s) identified by a red circle at the specific point in the wetland to be sampled. We realize that working on your property is a privilege and we will respect your rights and wishes at all times.

Please return the completed Landowner Access Permission Form in the enclosed postage-paid envelope by [date]. If you have any questions concerning this request, please contact me [phone number]. We are looking forward to your reply.

Sincerely,

[Name]

[Affiliation]

[Contact information]



United States Department of the Interior
U.S. Geological Survey
Biological Resources Division / National Wetlands Research Center
Gulf Breeze Project Office
1 Sabine Island Drive
Gulf Breeze, Florida 32561



May 1, 2007

Dear Landowner:

The U.S. Geological Survey in cooperation with other federal and state agencies is conducting an ecological assessment of coastal wetlands across the Gulf of Mexico region. A computer was used to randomly select sampling locations throughout the five Gulf of Mexico states. A total of 100 coastal wetlands sampling sites were selected for sampling in 2007/2008. We will be conducting a one-time site survey that will last 3-5 hours and will require no permanent structures. Our sample area will be small, consisting of a sample point location (latitude/longitude) and a 25-meter radius circle around the point. The primary focus of the on-site field survey is to record observations such as plant species diversity, topographic complexity, hydrology source and distance to uplands. A minimal amount of water, sediment and vegetation will be collected from the sample point, not to exceed the following amounts: a) water chemistry (less than 1 quart), b) sediment samples (less than 1 gallon) and c) vegetative clippings (3 plots of 3 square feet from herbaceous marsh sites or 15 live tree leaves from forested sites). This is part of a research study to evaluate methods that may be used in a national ecological assessment of coastal wetlands slated for 2011.

One or more of the 100 randomly selected sampling sites is located on your property. We are contacting you prior to the site visit to obtain permission (form enclosed) to access the sampling site. We have enclosed a copy of a topographic map(s) with the site(s) identified by an "X" at the specific point in the wetlands to be sampled. We realize that working on your property is a privilege and we will respect your landowner rights at all times and no visits will be made without prior contact to establish a specific field date and logistics. The data collected is to be used for scientific purposes and USGS agrees to provide the landowner a copy of final reports if requested. For legal clarification, USGS follows The Federal Tort Claims Act, 28 USC 2671, which holds the U.S. Government liable for personal injuries and property damage caused by the negligent or wrongful act or omission of its employees while they are performing their official duties.

Please return the completed Landowner Access Permission Form in the enclosed envelope. If you have any questions concerning this request, please contact me (850-934-9373). We are looking forward to your reply.

Sincerely,

Tom Heitmuller
Field Monitoring Coordinator

NWCA Landowner Permission Form

The Field Crew from [fill in state agency, Cooperator, or contractor name] has requested permission to access the wetland site located on my property as part of the EPA's National Wetland Condition Assessment. Please check one of the choices below:

_____ I grant permission

_____ I grant permission, but with the following restrictions: _____

_____ I do not grant permission

Landowner Name (please print): _____

Landowner Signature: _____

Date: _____

Phone Number: _____

Address: _____

Additional Access Information (please describe any specific details about your property that the Field Crew should be aware of, such as gates, cattle or livestock on property, planned prescribed burns, planned harvests, etc.):

If the occupant is different than the landowner, please list the name and phone number of the occupant below so that we may contact them before the site visit:

Appendix F: Survey Fact Sheets



Survey of the Nation's Wetlands: A Fact Sheet for Communities



Introduction

The U.S. Environmental Protection Agency (EPA), states, and tribes are conducting a nationwide survey of the condition of the nation's wetlands. This survey, the *National Wetlands Condition Assessment (NWCA)*, is one in a series of studies that will help us measure the health of our waters, take action to prevent pollution, and evaluate the effectiveness of protection and restoration efforts.

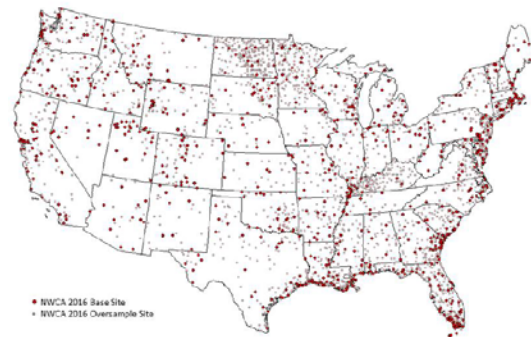
Designed to estimate the percentage of wetlands that are in good, fair, or poor condition, this survey will serve as a scientific report card on America's wetlands. It will examine ecological, biological and water quality indicators and assess the extent of key stressors across the country.

This survey is a collaborative effort that involves dozens of state environmental and natural resource agencies, federal agencies, tribes, universities and other organizations. In most states, state water quality staff will conduct the ecological sampling and habitat assessments.

How were wetlands selected?

A total of 904 wetland sites are included in this survey, representing seven wetland

types and distributed across the lower 48 states. EPA selected the wetland sites from the network of plots in the U.S. Fish Wildlife Service's most current National Wetland status and trends report, and National Wetland Inventory (NWI) digitized maps to capture areas where wetlands are present. Sampling sites were selected randomly using a statistical survey to represent the population of wetlands in their ecological region - the geographic area in which climate, ecological features, and plant and animal communities are similar.



Distribution of wetlands in the survey

What about my wetland?

If your wetland is being sampled for this survey, it was selected randomly from the total population of wetlands in your part

of the country. Your wetland was not selected because it exhibits any particular problem or water quality condition, or because it was recommended for sampling by an agency or organization. Data from your wetland will contribute to the regional and national picture of wetland condition. Personal information will not be collected or disclosed for purposes of this assessment.

If your wetland is not being sampled for this survey, it was not omitted for any particular reason, but rather because it was not randomly selected or did not fit into the target population of wetlands (e.g., wetlands that have rooted vegetation and water not greater than one meter in depth).

What will researchers measure?

Field crews will be taking many measurements at each selected wetland site. They will be using consistent procedures at all sites so that results can be compared across the country. They will be measuring such things as:

- The presence and abundance of grassy plants, trees, and shrubs
- Soil properties and chemistry
- Water chemistry (such as nutrients and chlorophyll-*a*)
- Hydrology information
- Condition of the habitat in the area surrounding the wetland

What happens next?

Field crews will sample wetland sites during the spring and summer of 2016. EPA intends to issue a report on the findings in 2018. Between the sampling period and publication of the national report, samples collected in the field will be analyzed by labs and written field observations will be entered into a database. Field and lab data will be analyzed and a draft report written.

A draft report describing the results of the NWCA 2011 survey is available on the following web page:

<http://www.epa.gov/national-aquatic-resource-surveys/nwca>.

For more information on the NWCA and other National Aquatic Resource Surveys, visit:

<http://www.epa.gov/national-aquatic-resource-surveys>

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Appendix G: Contact List

NWCA PROJECT CONTACT LIST

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Appendix H: NWCA 2016 Assessment Area Reference Cards

Reference Card AA-2, Side A. Criteria for Sampleable Area

The AA is sampleable if ALL of the following criteria are met:

- The AA contains the POINT (original design or shifted) and ranges in size from 0.1ha^a to 0.5ha.
 - ^a 0.1ha is the lower limit of detection of the U.S. Fish and Wildlife Service's Wetland Status and Trends project (Dahl and Bergeson 2009). It is also the smallest AA that will accommodate the vegetation plots.
- The AA is at least 20m wide^b to accommodate the vegetation plots (see Chapter 5).
 - ^b It is allowable for the AA to fall below the width of 20m in some locations, as long as Veg Plots can be placed adequately.
- Less than 10%^c of the area of the AA is unsampleable due to:
 - water greater than 1m deep^d
 - standing water or soft substrate that is unsafe or impossible to sample effectively; and/or
 - upland or non-target wetland type (see definition of wetland below).
 - ^c The 10% limit is based on the criteria used by the U.S. Fish and Wildlife Service's Wetland Status and Trends project (Dahl and Bergeson 2009).
 - ^d One meter is the minimum water depth sampled in the National Lakes Assessment and, thus sets the boundary between open water and fringing wetlands used in the National Aquatic Resource Surveys.
- The sampleable area contains one or more of the NWCA Target Wetland types representing the NWCA target population. See Reference Card AA-3, Side A for a list of target wetland types.

The **NWCA Target Population** is defined as: *Tidal and nontidal wetlands of the conterminous U.S., including certain farmed wetlands not currently in crop production. The wetlands have rooted vegetation and, when present, open water less than 1 meter deep.*

An ecologic (not jurisdictional) definition of wetland is used in establishing the AA. However, experience in wetland delineation for regulatory purposes and the related indicators will be helpful in determining wetland boundaries.

The definition of wetlands used by the NWCA is as follows:

*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. Wetlands must have **one or more** of the following three attributes:*

- 1) *at least periodically, the land supports predominantly hydrophytes;*
- 2) *the substrate is predominantly undrained hydric soil, and*
- 3) *the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year (Dahl 2006).*

Examples of characteristics that could be used in the field to identify whether the AA is wetland include:

- predominance of hydrophytic vegetation;
 - presence of plants with morphological or structural adaptations for growing in wetland soils, e.g., buttressed tree trunks, multiple trunks, pneumatophores, adventitious roots, hypertrophied lenticels, polymorphic leaves;
 - visual observation of soil saturation and/or inundation;
 - presence of undrained hydric soil;
 - presence of indicators of wetland hydrology. e.g., drift lines, watermarks, sediment deposits; and
 - geomorphic boundaries such as the active floodplain or flood-prone width.
- The AA does not cross any Hydrogeomorphic boundaries (see Side B).

Reference Card AA-2, Side B. Hydrogeomorphic Boundaries and Human Altered Types

Examples of Hydrogeomorphic Boundaries or Mixes of Types to Avoid in Establishing the AA

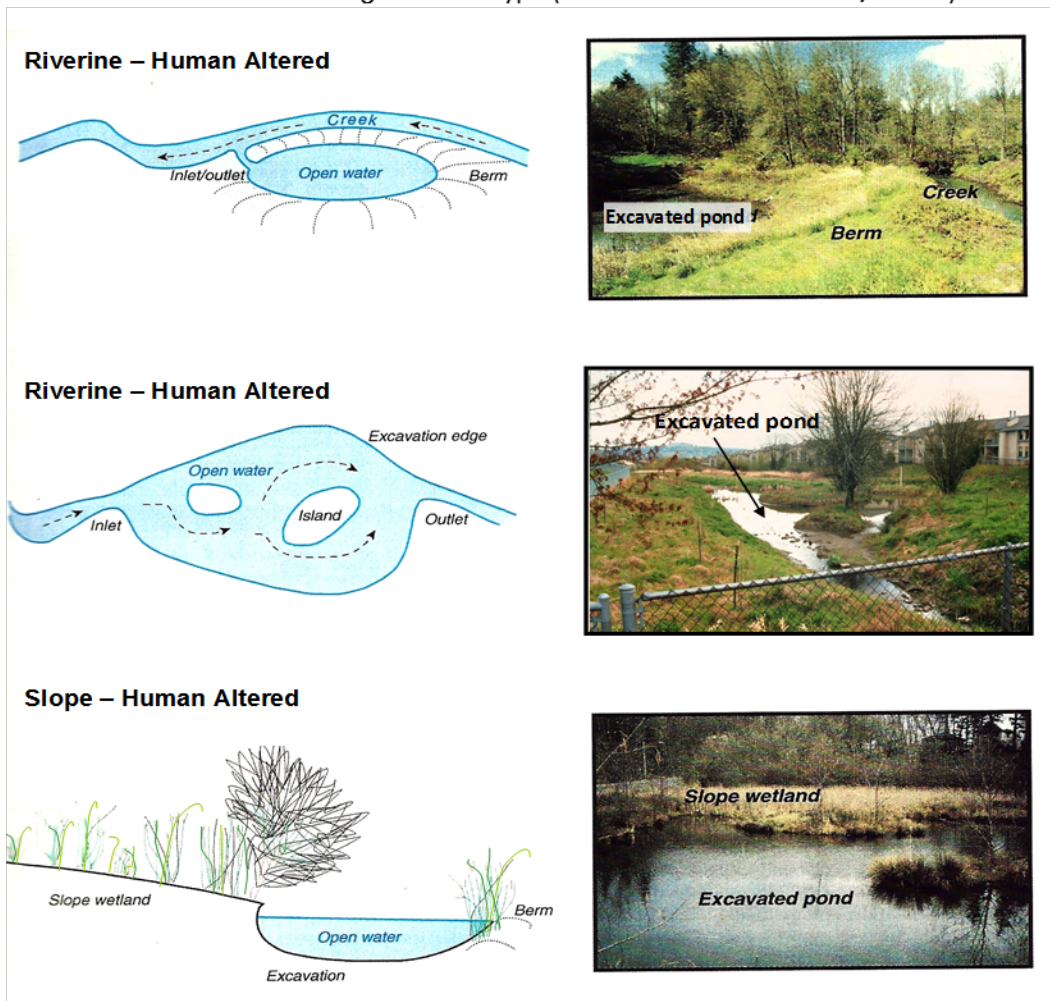
The AA should not include:

- A mix of tidal and nontidal wetlands;
- A tributary to the river or stream associated with the POINT; or
- A combination of lacustrine fringe or riverine wetlands and the seeps or springs (i.e., slope wetlands) upslope from them, in other words, the hydrogeomorphic (HGM) types are distinct (excluding any transition zone).

Alternatively, an AA can include a mosaic of HGM types (see Riverine Complex on **Reference Card AA-3, Side B**) or drainage channels typical in tidal and lacustrine fringing wetlands.

Examples of Human Altered Hydrogeomorphic Types

Alteration of the hydrogeomorphic (HGM) class of a site that has been altered or disturbed may change the class or create a hybrid HGM class. To avoid these problems, the site should be placed in the “human” class associated with the original HGM type (see **Reference Card AA-3, Side B**).



Reference Card AA-3, Side B. Key to Hydrogeomorphic Classes^a

1. Wetland would be under influence of tides if not for human actions, e.g., diked.....	Tidal – Human Altered^b
1. Wetland is naturally under influence of tides.....	2
2. Salinity greater than 0.5 parts per thousand (ppt).....	Tidal Fringe
2. Salinity less than 0.5 parts per thousand (ppt).....	Riverine Tidal
1. Wetland is not naturally under influence of tides.....	3
3. Wetland is topographically flat and precipitation is a dominant source of water.....	4
4. Wetland has a mineral soil.....	Flats Mineral Soil
4. Wetland has an organic soil.....	Flats Organic Soil
4. Either of the above with hydrology altered by human actions, e.g., ditching...	Flats – Human Altered^b
3. Wetland is not topographically flat and precipitation is not a dominant source of water.....	5
5. Wetland is associated with a nontidal stream channel, floodplain, or terrace.....	6
6. Stream is 1 st or 2 nd order.....	Riverine Upper Perennial
6. Stream is 3 rd order or higher.....	Riverine Lower Perennial
6. Wetland is part of a mosaic of small streams, floodplain features (former channels, depressions) and/or slope wetlands (supported by groundwater).....	Riverine Complex
6. Wadeable stream channel has been impounded by beaver activity.....	Riverine – Beaver Impounded
6. Wadeable stream channel has been excavated and deepened, the active floodplain has been excavated and/or isolated from overbank flows from the channel.....	Riverine – Human Altered^b
6. Stream is constrained by a graminoid-dominated wetland supported primarily by groundwater.....	10
5. Wetland is not associated with a nontidal stream channel, floodplain, or terrace.....	7
7. Wetland is fringing a lake or reservoir.....	8
8. Wetland inundation controlled by relatively natural hydroperiod.....	Lacustrine Fringe
8. Wetland inundation controlled by dam releases.....	Lacustrine Artificially Flooded
7. Wetland is not fringing a lake or reservoir.....	9
9. Wetland is primarily supported by ground water.....	10
10. Water source is ground water discharged to the surface on the side of a hill due to a geologic feature, e.g., a confining layer.....	Slope Stratographic
10. Water source is ground water discharged at the toe-of-slope.....	Slope Topographic
10. Slope wetland excavated to increase depth/amount of surface water.....	Slope–Human Altered^b
9. Wetland is associated with a topographic depression.....	11
11. Topographic depression without surface water inlets, outlets or other connections.....	12
12. Wetland is a naturally occurring feature of the landscape.....	Depression Closed
12. Closed Depression impounded by beaver activities.....	Depression – Closed Beaver Impounded
12. Closed Depression impounded by human activities.....	Depression – Closed Human Impounded
12. Closed Depression excavated by human activities.....	Depression – Closed Human Excavated
12. Closed Depression excavated and impounded by human activities.....	Depression – Closed Human Excavated and Impounded
11. Topographic depression with surface water inlets, outlets, or other connections.....	13
13. Wetland is a naturally occurring feature of the landscape.....	Depression Open
13. Open Depression impounded by beaver activities.....	Depression – Open Beaver Impounded
13. Open Depression impounded by human activities.....	Depression – Open Human Impounded
13. Open Depression excavated by human activities.....	Depression – Open Human Excavated
13. Open Depression is excavated and impounded by human activities....	Depression – Open Human Excavated and Impounded

^a Adapted from Smith et al. (1995), Brooks et al. (in press), and personal experience of M.E. Kentula, USEPA.

^b For examples of human altered hydrogeomorphic types see **Reference Card AA-2, Side B.**