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 2021: Quality Assurance Project Plan – EPA 843-B-21-004
• National Wetland Condition Assessment 2021: Laboratory Operations Manual – EPA 843-B-21-003
• National Wetland Condition Assessment 2021: Site Evaluation Guidelines – EPA 843-B-21-001

This document, National Wetland Condition Assessment 2021: 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), previous NWCA surveys (2011, 2016), 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:


Version History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Revision Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>11/20/20</td>
<td>Not applicable</td>
</tr>
<tr>
<td>1.1</td>
<td>2/26/21</td>
<td>Removed text concerning rooted vegetation requirements in the Assessment Area; updated reference card images and attachments.</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

1.0 IDENTIFICATION OF WETLAND SAMPLING LOCATIONS ................................................................. 8
2.0 DESKTOP EVALUATION ................................................................................................................... 11
3.0 OBTAINING PERMISSION TO ACCESS AND SAMPLE CANDIDATE SITE ................................. 14
4.0 FIELD EVALUATION ....................................................................................................................... 15
4.1 POINT VERIFICATION...................................................................................................................... 15
4.2 SHIFTING THE POINT .................................................................................................................... 17
5.0 SELECTING ALTERNATE POINTS ............................................................................................... 19
6.0 REPORTING SITE EVALUATION INFORMATION TO EPA ........................................................ 23
7.0 LITERATURE CITED ...................................................................................................................... 24

Appendix A: Instructions for filling out NWCA 2021 Site Evaluation Spreadsheet.......................... 25
Appendix B: Sampleable/Non-sampleable Categories ...................................................................... 29
Appendix C: Point Verification Form ................................................................................................. 30
Appendix D: Examples of Site Maps Provided by EPA upon Request ............................................. 32
Appendix E: Examples of Landowner Permission Letters and Forms ............................................... 33
Appendix F: Survey Fact Sheets ........................................................................................................ 35
Appendix G: Contact List ................................................................................................................... 37
Appendix H: NWCA 2021 Assessment Area Reference Cards .......................................................... 38
LIST OF FIGURES AND TABLES

Figure 1. Process of point evaluation............................................................................................................ 6
Figure 2 NWCA 2021 Site Replacement Plan (primary and alternate). Base Panels in shaded cells, oversample panels in unshaded cells. ........................................................................................................... 20
Figure 3. Example list of state sites from NWCA Site Evaluation Spreadsheet. (Note- some Estuarine Oversample sites have been hidden for the sake of this example).......................................................................................... 21

Table 1. NWCA Target Wetland Types and crosswalk with US Fish & Wildlife Service (USFWS) Status & Trends (S&T) wetland categories and USFWS National Wetland Inventory (NWI) wetland classes........... 10
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.
In the process of completing each step of the site evaluation, the evaluators 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, timing and duration of the peak growing season, plant species lists, etc.). If threatened or endangered species may occur at the site, include information on the applicable federal or state listed species, how to avoid them, and actions to be taken if they are encountered, per the field crew’s standard operating procedures.

If the evaluators do 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 evaluators must contact the landowner(s) to ensure they have permission to enter and traverse any private land in order 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 through a survey design consisting of two components:

1) sites from the prior NWCA survey in 2016; and
2) new sites drawn from a sample frame utilizing U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) digitized maps of wetland types and locations (http://www.fws.gov/wetlands/), or state-provided wetland maps comparable to NWI (MN, MT).

NWCA processed the NWI data by assigning wetland polygons to states and within each state assigning them to the NARS nine aggregated ecoregions. In addition, the detailed wetland classes were categorized into seven wetland types of interest to NWCA:

- E2EM- Estuarine Intertidal Emergent
- E2SS- Estuarine Intertidal Forest or Shrub
- PEM-Palustrine Emergent
- PSS- Palustrine Shrub
- Pf- Palustrine Farmed
- PFO- Palustrine Forested
- PUBPAB- Palustrine Unconsolidated Bottom/ Palustrine Aquatic Bed

and five wetland types not included:

- EOTH – Estuarine Other Wetlands
- M1M2 – Marine Wetlands
- LOTH – Lacustrine Other Wetlands
- POTH – Palustrine Other Wetlands
- ROTH – Riverine Other Wetlands

The former are included in the target population as they are likely to result in sites that would meet the NWCA definition of a wetland and the latter are excluded from the target population as they are unlikely to result in sites that would meet the NWCA definition of a wetland. Cowardian wetland classes were assigned to each NWCA wetland type by two wetland ecologists. Table 1 below provides descriptions of the NWCA Target Wetland Types.

Sample sites in the NWCA, also 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 U.S., consisting of 269 resample sites from NWCA 2016 and 635 new sites. 96 of the 904 sites will be sampled twice within the index period to quantify variability in sampling; these sites are referred to as revisit sites. 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 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 defines wetlands using the classification system described by Cowardin et al. (1979) and established as a Federal Geographic Data Committee (FGDC) standard for classification of wetlands. This may be different than the definitions applied under state or federal regulatory programs. A wetland’s status under state or federal regulatory programs does not affect a site’s status as target for purposes of 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 2021. The spreadsheet contains a list of base and oversample POINTS selected by the survey design in each state for three separate Stratum (ReSamp_2016, Estuarine, Inland), with the exception of Minnesota who has their own design. The POINTS are listed on the spreadsheet in the order in which they were randomly selected. POINTS designated as base sites that are determined to be target and sampleable are sampled at least once. The first two POINTS in each state 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, assuming they are target and sampleable. All base POINTS (Panel Use = Base21_16RVT2, Base21_16, Base21_21) must be evaluated and sampled unless determined to be non-target or non-sampleable for reasons identified later in this document. Please see Section 5.0 SELECTING ALTERNATE POINTS for more information on the POINT replacement process.

Resample POINTS were restricted to NWCA 2016 evaluated POINTS and include BOTH sampled and non-sampled POINTS from the 2016 site list, including POINTS found to be nontarget or inaccessible in 2016. All sites should be evaluated again in 2021 to determine if they are target and if target whether they can be sampled. Conditions could have changed since 2016 that may result in the site now being sampleable.

EPA must receive information for ALL evaluated POINTS, beginning with the first POINT on the state list and ending with the last POINT that is sampled for each respective Stratum. Please contact your EPA Regional Coordinator, Site Evaluation Coordinator, or the Field Logistics Coordinator, if you have any questions.

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 crosswalk with US Fish & Wildlife Service (USFWS) Status & Trends (S&T) wetland categories and USFWS National Wetland Inventory (NWI) wetland classes.

<table>
<thead>
<tr>
<th>NWCA Target Wetland Type (Design Code)</th>
<th>NWCA Target Wetland Type (Form/App Code)</th>
<th>NWCA Target Wetland Type</th>
<th>S&amp;T Wetland Categories*1</th>
<th>Included NWI Classes: Systems/Subsystems2</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2EM</td>
<td>EH</td>
<td>Estuarine Emergent</td>
<td>E2EM - Estuarine Intertidal Emergent</td>
<td>Emergent and Aquatic Bed Classes in Estuarine/Intertidal Subsystems</td>
</tr>
<tr>
<td>E2SS</td>
<td>EW</td>
<td>Estuarine Shrub/Forest</td>
<td>E2SS - Estuarine Intertidal Forest or Shrub</td>
<td>Forested and Scrub-Shrub Classes in Estuarine/Intertidal Subsystems</td>
</tr>
<tr>
<td>PEM</td>
<td>PRL-EM</td>
<td>Palustrine, Riverine, and Lacustrine - Emergent</td>
<td>PEM - Palustrine Emergent</td>
<td>Emergent Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</td>
</tr>
<tr>
<td>PUBPAB</td>
<td>PRL-UBAB</td>
<td>Palustrine, Riverine, and Lacustrine - Unconsolidated Bottom/Aquatic Bed</td>
<td>PUB - Palustrine Unconsolidated Bottom PAB - Palustrine Aquatic Bed</td>
<td>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</td>
</tr>
<tr>
<td>Pf</td>
<td>PRL-f</td>
<td>Palustrine, Riverine, and Lacustrine - Farmed</td>
<td>Pf - Palustrine farmed</td>
<td>Farmed Modifier in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</td>
</tr>
<tr>
<td>PSS</td>
<td>PRL-SS</td>
<td>Palustrine, Riverine, and Lacustrine - Shrub/Scrub</td>
<td>PSS - Palustrine Shrub</td>
<td>Scrub-Shrub Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems Forested Classes in Palustrine Systems; Shallow Riverine/Tidal, Lower Perennial, Upper Perennial, or Intermittent Subsystems; and Shallow Lacustrine/Littoral Subsystems</td>
</tr>
<tr>
<td>PFO</td>
<td>PRL-FO</td>
<td>Palustrine, Riverine, and Lacustrine - Forested</td>
<td>PFO - Palustrine Forested,</td>
<td></td>
</tr>
</tbody>
</table>

* 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.
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 2021 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 reconnaissance visit is 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 evaluators, 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 Site Evaluation Spreadsheet. EPA provides each state or entity conducting sampling for NWCA 2021 an Excel spreadsheet to fill out electronically. Instructions for completing the Site Evaluation Spreadsheet are provided in Appendix A: Instructions for filling out NWCA 2021 Site Evaluation Spreadsheet. Site evaluation information must be completed for all 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 category on the Site Evaluation Spreadsheet (see Appendix B: Sampleable/Non-sampleable Categories). Provide an explanation for your choice in the appropriate column of the spreadsheet, detail explanatory information under the Additional Comments column (required) 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:

---

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. Is 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. Is 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 any of these criteria are met, indicate that the site is non-target and select the
appropriate category (see Appendix B: Sampleable/Non-sampleable Categories) on the
Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate
columns of the spreadsheet, detail explanatory information under the Additional
Comments (required) 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-target and
select the appropriate category (see Appendix B: Sampleable/Non-sampleable Categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail explanatory information under the Additional Comments (required) 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-sampleable category (see Appendix B: Sampleable/Non-sampleable Categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail explanatory information under the Additional Comments (required) column, and follow the procedures for selecting an alternate POINT in Section 5.0 SELECTING ALTERNATE POINTS. 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 in most places
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-sampleable category (see Appendix B: Sampleable/Non-sampleable Categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, detail explanatory information under the Additional Comments column (required), and follow the procedures for selecting an alternate POINT in Section 5.0 SELECTING ALTERNATE POINTS.

If the POINT (or an area within 60 meters of the POINT) is determined to be sampleable, follow the procedures for obtaining permission to access the POINT in Section 3.0 OBTAINING PERMISSION TO ACCESS AND SAMPLE CANDIDATE SITE. 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 Site Evaluation Coordinator (Appendix G: Contact List).

---

\(^3\) Refer to Chapter 3 of the NWCA 2021 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 SITES

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 FIELD EVALUATION). 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 about 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: Examples of Landowner Permission Letters and Forms. 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: Survey Fact Sheets.

Landowner information can often 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. 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 2021 index 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. Evaluators may use a paper POINT Verification Form (PV-1; see Appendix C: Point Verification Form) for their own documentation. 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.

The evaluators that conduct the field evaluation should consist of at least two 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 wetland, and if not, to determine if it is possible to shift the POINT to a nearby area that is a wetland (see 4.2 SHIFTING THE POINT). This will be achieved more easily and quickly if one of the evaluators 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 by the evaluators 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 2021 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 defines wetlands using the classification system described by Cowardin et al. (1979) and established as a Federal Geographic Data Committee (FGDC) standard for classification of wetlands. This may be different than the definitions applied under state or federal regulatory programs. A wetland’s status under state or federal regulatory programs does not affect a site’s status as target for purposes of NWCA.
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:

1. Is 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. Is 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 by the evaluators 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:

1. AA is between 0.1 and 0.5 hectares in area
2. AA is at least 20 meters wide
3. 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)
4. 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 (Appendix H: NWCA 2021 Assessment Area Reference Cards) 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-target or non-sampleable, determine whether it is possible to shift the POINT to a place within 60 meters of the original POINT that is target and sampleable by following the procedures outlined in Section 4.2 SHIFTING THE POINT.

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 the Site Evaluation Coordinator (Appendix G: Contact List).

### 4.2 SHIFTING THE POINT

If during POINT verification it is determined that the original POINT cannot be sampled because the POINT is inaccessible, is not in a 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

---

\(^5\) Refer to Chapter 3 of the NWCA 2021 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: NWCA 2021 Assessment Area Reference Cards.

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

a. For ReSamp_2016 stratum POINTS, evaluators may shift the POINT to the nearest wetland (within 60 meters) regardless of wetland type.

b. For Inland and Estuarine stratum POINTS (e.g., new 2021 sites), the POINT should first be shifted 60 meters or less to a wetland type within that respective stratum. If there are no wetland types available within that stratum, then shift to a wetland type in another stratum.

If the POINT needs to be shifted, 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-sampleable category (see Appendix B: Sampleable/Non-sampleable Categories) on the Site Evaluation Spreadsheet. Provide an explanation for your choice in the appropriate column of the spreadsheet, **detail explanatory information under the Additional Comments column (required)** 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 Site Evaluation Coordinator (Appendix G: Contact List).
5.0 SELECTING ALTERNATE POINTS

The list of POINTS randomly generated for the NWCA is organized in state specific NWCA 2021 Site Evaluation Spreadsheets and provided to each crew by EPA. The spreadsheet contains a list of base and oversample POINTS in the state for three separate stratum (ReSamp_2016, Estuarine, Inland). The POINTS are listed on the spreadsheet in the order in which they were randomly selected. The first two base POINTS in each state 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 are sampled once. The order of the sites on the list MUST BE maintained, but they can be sampled in any order the crew chooses. All base sites (Panel Use = Base21_16RVT2, Base21_16, Base21_21) must be evaluated, and then sampled unless determined to be non-target or non-sampleable for one of the following reasons:

i. The POINT is inaccessible (due to safety, persistent deep water, lack of rooted vegetation 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-target or non-sampleable are replaced within their respective Stratum (Stratum = ReSamp_2016, Estuarine, Inland) following Figure 2.
NOTE: all replacements must occur in the same state and in the correct stratum and Panel_Use (year or wetland type) as the original base site.

If no additional oversample sites are available in the correct state, stratum and Panel_Use, contact Danielle Grunzke or Chris Turner.

*See Footnote

2021 Sites (Stratum = Estuarine or Inland)

*When replacing a Revisit (RVT2) site with a Base Site, Re-designate the appropriate Base site as a Revisit site AND replace the dropped Base site with an appropriate oversample site.
If a designated revisit POINT (Base21_16RVT2) is determined to be non-sampleable, then it is replaced by the next sampleable non-revisit base POINT (Base21_16) on the state list within the ReSamp_2016 stratum. This POINT is sampled a second time. If no remaining Base21_16 POINTS can be sampled, then the first available Over21_16 POINT is evaluated and if it can be sampled it is sampled twice. If no Over21_16 POINT is available, then the first Base21_21 POINT within the Inland stratum will be sampled twice and an additional oversample POINT (Over21_21) within the Inland stratum will be selected to replace that base POINT in order to maintain total number of POINTS sampled. Note that this process will result in no change in the overall number of POINTS sampled in a state.

Figure 3 is provided to help illustrate the process for replacing POINTS within a state. For example, if revisit site NWC21-AL-10002 cannot be sampled, the next Base21_16 POINT within the ReSamp_2016 stratum, NWC21-AL-10003, is evaluated and, if possible, sampled. This becomes the second revisit POINT and is sampled twice. The first ReSamp_2016 oversample POINT on the list, NWC21-AL-10017, is then evaluated as a replacement Base21_16 POINT for NWC21-AL-10003 (which became the second Base21_16RVT2 site).

Likewise, if NWC21-AL-10006 is determined to be non-sampleable, then the next oversample POINT within the same stratum (Estuarine), NWC21-AL-10037, is evaluated and, if sampleable, replaces NWC21-AL-10007 as the Estuarine base site. The total number of base sites within a state must equal the total number of sampled sites.

As POINTS are determined to be non-target or non-sampleable, evaluators will continue to work with the Designated EPA Contact to replace them with oversample POINTS by selecting the next available site on the list within that stratum, irrespective of NWCA wetland type. It is imperative for crews to fill the site evaluation spreadsheet for each evaluated site regardless of whether it was sampled.

Figure 3. Example list of state sites from NWCA Site Evaluation Spreadsheet. (Note- some sites have been hidden for the sake of this example).
If the site will require extreme resources and / or considerable time to sample, contact the NWCA Project Team (Appendix G: Contact List) 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 to appropriate Field Crew(s), state or tribal agencies AND to the EPA Project Team.
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 2021. 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 (Base21_16RVT2, Base21_16, Base21_21) 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 2021/ Site Evaluation Materials/State and Contractor Submitted Site Evaluation Spreadsheets prior to the 2021 field season. The file name for the upload must include the state abbreviation (ST) and the date of upload. Please adhere to the following file naming format:

NWCA2021_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. Please change the date of the document to alert EPA to the most recent version. 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:

NWCA2021_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


Appendix A: Instructions for filling out NWCA 2021 Site Evaluation Spreadsheet

INSTRUCTIONS FOR COMPLETING NWCA 2021 SITE EVALUATION SPREADSHEET

1. Save spreadsheet using the following format: NWCA2021_SiteEvalSpreadsheet_ST_YYYYMMDD where "ST" is your state abbreviation and "YYYYMMDD" is the current date.

2. Fill out evaluator contact information under 'EVALUATOR CONTACT INFO' tab and all required information for each evaluated site in the 'MAIN' worksheet tab. The table below provides a description of each field and the required information needed to be provided by the evaluator.

3. Each dropdown menu in columns K-M are connected in a series of cascading dropdown menus. A selection must be made in column K to populate the options for column L. Once a selection has been made in Column L, the appropriate options will be available in column M. Should you need to change the distinction of one column, please make sure the selection is correct each of the preceding columns, if not, selection mismatches may occur.

IMPORTANT REMINDER:
The order of the sites on the list MUST BE maintained. All base sites, rows colored with the darker hues, (Panel Use = Base21_16RVT2, Base21_16 and Base21_21) must be evaluated and sampled unless determined to be non-target or non-sampleable. Base sites that are determined to be non-target or non-sampleable are replaced by oversample sites within their respective Stratum beginning with the first oversample site on the list for that Stratum (Oversample sites are identified by rows with lighter colored hues and Panel Use = Over21_16 or Panel Use = Over21_21). 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 for each respective Stratum. The number of sites sampled must equal the total number of base sites on a state list. A flowchart for how to select an oversample site can be found in the 'OVERSAMPLE SELECTION CHART' tab. Please contact your EPA Regional Coordinator, EPA Site Evaluation Coordinator, Danielle Grunzke (grunzke.danielle@epa.gov; 202-566-2876) and the Field Logistics Coordinator, Chris Turner (cturner@glec.com; 715-829-3737) if you have any questions.

<table>
<thead>
<tr>
<th>COLUMN / FIELD IN MAIN TAB</th>
<th>DESCRIPTION</th>
<th>REQUIRED ACTION BY EVALUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE</td>
<td>Postal code for state</td>
<td>None</td>
</tr>
<tr>
<td>SITE_ID</td>
<td>NWCA 2021 site identification number</td>
<td>None</td>
</tr>
<tr>
<td>SITE_ID (2016)</td>
<td>NWCA 2016 site identification number if POINT was evaluated in 2016. Cell will be left blank if not part of NWCA 2016.</td>
<td>None</td>
</tr>
<tr>
<td>Latitude</td>
<td>Latitude in decimal degrees of POINT from design file</td>
<td>None</td>
</tr>
<tr>
<td>Longitude</td>
<td>Longitude in decimal degrees of POINT from design file</td>
<td>None</td>
</tr>
<tr>
<td>Stratum</td>
<td>Stratum category (e.g., ReSamp_2016, Estuarine, Inland) in NWCA design</td>
<td>None</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Panel Use</td>
<td>Type of site (e.g., revisit (RVT2), base, or oversample) from design file</td>
<td>None</td>
</tr>
<tr>
<td>Eval Status 2016</td>
<td>Evaluation status of the site from the 2016 survey. Cell will be blank if not evaluated in NWCA 2016</td>
<td>None</td>
</tr>
<tr>
<td>NWCA Target Wetland Type</td>
<td>NWCA wetland code from the 2021 sample frame. See ‘NWCA TARGET WET TYPE’ tab for descriptions of each wetland type</td>
<td>None</td>
</tr>
<tr>
<td>NWI Code (2021 Sites)</td>
<td>Full wetland class code from the NWI. Cell will be blank if code not available</td>
<td>None</td>
</tr>
</tbody>
</table>
| Is POINT Sampleable?  | Drop down list to indicate whether POINT is sampleable                   | If Yes, choose sampleable category and wetland type in the next two columns  
                        |                                                           | If No, choose non-sampleable category and reason in the next two columns, then add additional explanation in column N |
| Sampleable/Non-       | Drop down list to indicate the sampleable / non-sampleable category        | If sampleable, indicate either:  
                        |                                                           | **Point Sampleable** (POINT is in target wetland and sampleable AA can be setup)  
<pre><code>                    |                                                           | **Shifted Point Sampleable** (POINT can be shifted to location within 60m where sampleable AA can be setup). Note: a POINT shift greater than 60m requires prior EPA approval. |
</code></pre>
<table>
<thead>
<tr>
<th>Reason (Non-sampleable) or Wetland Type (Sampleable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>If non-sampleable, provide the appropriate non-sampleable category:</td>
</tr>
<tr>
<td>- <strong>No Access</strong> (permission not granted or permanently inaccessible)</td>
</tr>
<tr>
<td>- <strong>AA Cannot Be Established</strong> (due to size, unsampleable area, or HGM constraints)</td>
</tr>
<tr>
<td>- <strong>Non-Target</strong> (not in target wetland population)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drop down list to indicate the reason it is non-sampleable OR the wetland type if it is sampleable</th>
</tr>
</thead>
<tbody>
<tr>
<td>If non-sampleable, select the appropriate reason for the respective category:</td>
</tr>
<tr>
<td>- <strong>No Access</strong> Categories:</td>
</tr>
<tr>
<td>- Access not granted by site owner (Explain)</td>
</tr>
<tr>
<td>- Permanently inaccessible due to obstacles going to or at site (see Site Evaluation Guidelines) (Explain)</td>
</tr>
<tr>
<td>- <strong>AA Cannot Be Established</strong> Categories:</td>
</tr>
<tr>
<td>- Sampleable area too small (see Site Evaluation Guidelines)</td>
</tr>
<tr>
<td>- Unsampleable area greater than 10% of AA (see Site Evaluation Guidelines)</td>
</tr>
<tr>
<td>- Sampleable area crosses hydrogeomorphic (HGM) boundary (see Site Evaluation Guidelines)</td>
</tr>
<tr>
<td>- <strong>Non-Target</strong> Categories:</td>
</tr>
<tr>
<td>- Not a wetland (due to map error, development activity since initial mapping, lacking wetland indicator(s), etc) (Explain)</td>
</tr>
<tr>
<td>- Non-target wetland type (not one of the NWCA target wetland types-see 'NWCA TARGET WET TYPES') (Explain)</td>
</tr>
<tr>
<td>- Active crop production during index period (see Site Evaluation Guidelines) (Explain)</td>
</tr>
<tr>
<td>- Strictly used for industrial/agricultural/aquacultural purpose (see Site Evaluation Guidelines) (Explain)</td>
</tr>
<tr>
<td>- Inundated by water &gt; 1 m in depth (over 90% of area 60m around pt)</td>
</tr>
<tr>
<td>- Other (if you feel reason is not covered in other choices, select AND describe in next field)(Explain)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If sampleable, provide the predominant wetland type of the AA:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>EH</strong> - Estuarine Emergent</td>
</tr>
<tr>
<td>- <strong>EW</strong> - Estuarine Shrub/Forest</td>
</tr>
<tr>
<td>- <strong>PRL-EM</strong> - Palustrine, Riverine, and Lacustrine Emergent</td>
</tr>
<tr>
<td>- <strong>PRL-SS</strong> - Palustrine, Riverine, and Lacustrine Shrub/Scrub</td>
</tr>
<tr>
<td>- <strong>PRL-FO</strong> - Palustrine, Riverine, and Lacustrine Forested</td>
</tr>
<tr>
<td>- <strong>PRL-UBAB</strong> - Palustrine, Riverine, and Lacustrine Unconsolidated Bottom/Aquatic Bed</td>
</tr>
<tr>
<td>- <strong>PRL-f</strong> - Palustrine, Riverine, and Lacustrine Farmed</td>
</tr>
<tr>
<td>Explain Non-sampleable Choice (REQUIRED FOR DROPPED SITES)</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Was this POINT Used as a Replacement POINT for a Base POINT?</td>
</tr>
<tr>
<td>Site ID of Original Base POINT Replaced</td>
</tr>
<tr>
<td>Site Access Considerations</td>
</tr>
<tr>
<td>Permit Requirements</td>
</tr>
<tr>
<td>Additional Evaluator Comments</td>
</tr>
</tbody>
</table>
Appendix B: Sampleable/Non-sampleable Categories

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

Sampleable Categories
### Appendix C: Point Verification Form

**FORM PV-1: NWCA 2021 POINT VERIFICATION FORM (Front)** (Reviewed by Initials) ____________

**SITE ID:** NWCA21-_________________________  **VISIT:** 0 1  **DATE:** __/__/2021

**EVALUATOR:** ___________________________  **AFFILIATION:** ____________

#### POINT LOCATION AND ACCESSIBILITY

**Directions to POINT:**

---

**POINT verified by** (mark all that apply, describe other item(s) if applicable):  
- [ ] GPS  
- [ ] Topographical Map  
- [ ] Aerial

- [ ] Other (describe): ____________________________

**Note any difficulties accessing site** (mark all that apply, describe other item(s) if applicable):  
- [ ] Dense Vegetation  
- [ ] Steep or Unstable terrain  
- [ ] Deep Water  
- [ ] Livestock

- [ ] Other (describe): ____________________________

**Special Access Requirements** (mark all that apply, describe other item(s) if applicable):  
- [ ] Locked Gates  
- [ ] Special Permits

- [ ] Other (describe): ____________________________

#### IS POINT SAMPLEABLE?

- [ ] YES:  
  - [ ] original POINT is sampleable (fill in category below)
  - [ ] POINT could be shifted ±80m (fill in category below)
  - [ ] AND enter documentation for shifted point on Form AA-1 at time of sampling.

- [ ] NO (fill in category below)

**NWCA Wetlands Target Type INCLUDED in target population**:  
- [ ] CAV - Estuarine Shrub/Forest
- [ ] BH - Estuarine Emergent
- [ ] BRLM - Palustrine, Riverine, and Laquastine Emergent
- [ ] BRLS - Palustrine, Riverine, and Laquastine Shrub
- [ ] BRLF - Palustrine, Riverine, and Laquastine Flooded
- [ ] BRL-FR - Palustrine, Riverine, and Laquastine Unconsolidated Bottom/Aquatic Bed
- [ ] BRL-F - Palustrine, Riverine, and Laquastine Farmed (not currently in active crop production)

**NON-SAMPLEABLE - ON THIS VISIT**:  
- [ ] Non-Sampleable (add reasons to comment section on back)
- [ ] Temporarily inaccessible (add reasons to comment section on back)

**NON-SAMPLEABLE - NO ACCESS CATEGORIES**:  
- [ ] Access permission denied
- [ ] Permanently inaccessible (add reasons to comment section on back)

**NON-SAMPLEABLE - AA CAN'T BE ESTABLISHED**:  
- [ ] Sampleable area too small
- [ ] Unsampleable area greater than 10%, includes water >1m deep
- [ ] Sampleable area crosses hydrogeomorphic (HGM) boundary

**NON-SAMPLEABLE - NON-TARGET CATEGORIES**:  
- [ ] Not a wetland
- [ ] Non-target wetland type
- [ ] Active crop production curing index period (explain)
- [ ] Strictly used for an industrial/agricultural/aquacultural purpose (explain)
- [ ] Inundated by water >1m in depth (over 30% of area 60m around pit)
- [ ] Other (describe): ____________________________

Provide any additional information in the comments section on the back of this form.

---

**11/11/2020 PV-1 NWCA 2021 Point Verification Form**  
**1712124255**
FORM PV-1: NWCA 2021 POINT VERIFICATION FORM (Back) Reviewed by (Initial):  

SITE ID: NWCA21- __________________________ DATE: ______ / ______ / 2021  

GENERAL ASSESSMENT COMMENTS

Record any additional information and observations of the POINT or surrounding area. Potential information to include: general observations of bioric 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.
Appendix D: Examples of Site Map Provided by EPA upon Request

National Wetland Condition Assessment 2021
Site NWC21-ST-10001

County: Baldwin, AL
Latitude (deg dec): 30.78049
Longitude (deg dec): -87.96365
Panel: Resamp_2016
SiteID 2016: NWCA16-1012
Wetland Type (from design): PEM
NWCA Wetland Group: PRLH
Ownership (from PAD): Federal
Agency (from PAD): US Army Corps of Engineers
Name (if applicable): Mobile-Tensaw Delta WMA

LEGEND
- POINT
- 40m radius (standard AA layout)
- 140m radius (standard buffer area)
- 60m radius (potential shifted AA zone)
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 2021. 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]
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
## NWCA PROJECT CONTACT LIST

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPA HQ NWCA Project Manager</strong></td>
<td>Gregg Serenbetz, OW</td>
<td><a href="mailto:Serenbetz.Gregg@epa.gov">Serenbetz.Gregg@epa.gov</a>, 202-566-1253</td>
</tr>
<tr>
<td><strong>EPA HQ NWCA Site Evaluation Coordinator</strong></td>
<td>Danielle Grunzke, OW</td>
<td><a href="mailto:Grunzke.Danielle@epa.gov">Grunzke.Danielle@epa.gov</a>; 202-566-2876</td>
</tr>
<tr>
<td><strong>EPA HQ Logistics Coordinator</strong></td>
<td>Brian Hasty, OW</td>
<td><a href="mailto:Hasty.Brian@epa.gov">Hasty.Brian@epa.gov</a>; 202-564-2236</td>
</tr>
<tr>
<td><strong>EPA HQ NARS Team Lead</strong></td>
<td>Sarah Lehmann, OW</td>
<td><a href="mailto:Lehmann.Sarah@epa.gov">Lehmann.Sarah@epa.gov</a>, 202-566-1379</td>
</tr>
<tr>
<td><strong>Contract Field Logistics Coordinator</strong></td>
<td>Chris Turner, Great Lakes Environmental Center, Inc.</td>
<td><a href="mailto:cturner@glec.com">cturner@glec.com</a>; 715-829-3737</td>
</tr>
<tr>
<td><strong>Information Management Coordinator</strong></td>
<td>Michelle Gover, General Dynamics Information Technology</td>
<td><a href="mailto:gover.michelle@epa.gov">gover.michelle@epa.gov</a>, 541-754-4793</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Beth Alafat, Region 1</td>
<td><a href="mailto:Alafat.Beth@epa.gov">Alafat.Beth@epa.gov</a>, 617-918-1399</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Tom Faber, Region 1</td>
<td><a href="mailto:Faber.Tom@epa.gov">Faber.Tom@epa.gov</a>, 617-918-8672</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Jaclyn Woollard, Region 2</td>
<td><a href="mailto:Woollard.Jaclyn@epa.gov">Woollard.Jaclyn@epa.gov</a>, 212-637-3832</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Emily Nering, Region 2</td>
<td><a href="mailto:Nering.Emily@epa.gov">Nering.Emily@epa.gov</a>, 732-321-6764</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Christine Mazzarella, Region 3</td>
<td><a href="mailto:Mazzarella.Christine@epa.gov">Mazzarella.Christine@epa.gov</a>, 215-814-5756</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Bill Richardson, Region 3</td>
<td><a href="mailto:Richardson.William@epa.gov">Richardson.William@epa.gov</a>, 215-814-5675</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Elizabeth McGuire Smith, Region 4</td>
<td><a href="mailto:Smith.Elizabeth@epa.gov">Smith.Elizabeth@epa.gov</a>, 404-562-8721</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Christopher McArthur, Region 4</td>
<td><a href="mailto:mcarthur.christopher@epa.gov">mcarthur.christopher@epa.gov</a>, 404-562-9391</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Elizabeth Belk, Region 4</td>
<td><a href="mailto:Belk.Elizabeth@epa.gov">Belk.Elizabeth@epa.gov</a>, 404-562-9377</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Diana Woods, Region 4</td>
<td><a href="mailto:Woods.Diana@epa.gov">Woods.Diana@epa.gov</a>, 404-562-9404</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Kerryann Weaver, Region 5</td>
<td><a href="mailto:weaver.kerryann@epa.gov">weaver.kerryann@epa.gov</a>, 312-353-9483</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Mari Nord, Region 5</td>
<td><a href="mailto:Nord.Mari@epa.gov">Nord.Mari@epa.gov</a>, 312-886-3017</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Robert Cook, Region 6</td>
<td><a href="mailto:Cook.Robert@epa.gov">Cook.Robert@epa.gov</a>, 214-665-7141</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Eliodora Chamberlin, Region 7</td>
<td><a href="mailto:Chamberlin.Eliodora@epa.gov">Chamberlin.Eliodora@epa.gov</a>, 913-551-7945</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Nolan Hahn, Region 8</td>
<td><a href="mailto:hahn.nolan@epa.gov">hahn.nolan@epa.gov</a>, 303-312-6486</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Tom Johnson, Region 8</td>
<td><a href="mailto:Johnson.Tom@epa.gov">Johnson.Tom@epa.gov</a>, 303-312-6226</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Liz Rogers, Region 8</td>
<td><a href="mailto:Rogers.Liz@epa.gov">Rogers.Liz@epa.gov</a>, 303-312-6974</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Matt Bolt, Region 9</td>
<td><a href="mailto:Bolt.Matthew@epa.gov">Bolt.Matthew@epa.gov</a>, 415-972-3578</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Jennifer Siu, Region 9</td>
<td><a href="mailto:Siu.Jennifer@epa.gov">Siu.Jennifer@epa.gov</a>, 415-972-3983</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Annie Whitley, Region 10</td>
<td><a href="mailto:Whitley.Annie@epa.gov">Whitley.Annie@epa.gov</a>, 206-553-0058</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Charissa Bujak, Region 10</td>
<td><a href="mailto:Bujak.Charissa@epa.gov">Bujak.Charissa@epa.gov</a>, 208-378-5754</td>
</tr>
<tr>
<td><strong>EPA Regional Coordinators</strong></td>
<td>Lil Herger, Region 10</td>
<td><a href="mailto:Herger.Lillian@epa.gov">Herger.Lillian@epa.gov</a>, 206-553-1074</td>
</tr>
</tbody>
</table>
Appendix H: NWCA 2021 Assessment Area Reference Cards

Reference Card AA-1: Assessment Area Establishment, Side A

Key to Assessment Area (AA) Layouts

1a Sampleable area contains POINT (original or shifted) and is ≥ 0.5 hectares (ha) ................................................................. 2

2a Sampleable area can contain a circular area with a diameter of 80m ................................................................. 3

3a POINT is at the center of sampleable area ............................... Standard Circular AA (Plate 1)

3b POINT (original or shifted) is not at the center of sampleable area Standard Circular AA - Shifted (Plate 1)

2b Sampleable area contains POINT (original or shifted) but ranges from minimum width 20m (length 250m) to maximum width of 79.5m (length 63m) ........................................... Polygon AA (Plate 2)

1b Sampleable area contains POINT (original or shifted) and is ≤ 0.5ha but ≥ 0.1ha ..................... Wetland Boundary AA (Plate 3)

Sampleable Area: No more than 10% of the AA can contain upland, non-target wetland, standing water greater than 1m deep, or soft substrate that is unsafe or impossible to sample.

Plate 1: Standard AA Layouts

Standard Circular AA

Reference Card AA-1: Assessment Area Establishment, Side B

Plate 2: Polygon AA Layouts

AA is 0.5ha

AA CENTER is as close to POINT as possible

Wide Polygon AA (POINT is AA CENTER)

Narrow Polygon AA (POINT is not AA CENTER)

Plate 3: Wetland Boundary AA Layouts

AA is 0.1ha to 0.5ha

AA CENTER is as close to POINT as possible

Wetland Boundary AA (POINT is AA CENTER)

Wetland Boundary AA (POINT is not AA CENTER)
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 to 0.5ha.

- The AA is at least 20m wide\textsuperscript{b} to accommodate the vegetation plots (see Chapter 5).
  \textsuperscript{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.

- No more than 10% of the area of the AA:
  has water greater than 1m deep\textsuperscript{d};
  has standing water or soft substrate that is unsafe or impossible to sample effectively; and/or
  has upland or non-target wetland type (see definition of wetland below).
  \textsuperscript{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: \textit{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 defines wetlands using the classification system described by Cowardin et al. (1979) and established as a Federal Geographic Data Committee (FGDC) standard for classification of wetlands:

\textit{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 predominately 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 (FGDC 2013).

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-3, Side B. Key to Hydrogeomorphic (HGM) Classes and Subclasses

In the following key, the HGM Class is separated by a dash (–) from the corresponding HGM Subclass. Modifiers to the HGM Subclass are described after a comma (,) for the Depression HGM Class.

1. Wetland would be under influence of tides if not for human actions, e.g., diked. ... Tidal – Human Altered
2. Wetland is naturally under influence of tides. ................................................................. Tidal – Naturally Occurring
3. Wetland is topographically flat and precipitation is a dominant source of water. ....... Flats – Mineral Soil
4. Wetland has a mineral soil.............................................................. Flats – Organic Soil
5. Wetland is associated with a nontidal stream channel, floodplain, or terrace. .....

6. Stream is 1st or 2nd order. ........................................................................ Riverine – Upper Perennial
7. Stream is 3rd order or higher. .......................................................................... Riverine – Lower Perennial
8. Wetland is part of a mosaic of small streams, floodplain features (former channels, depressions) and/or slope wetlands (supported by groundwater). ...................................................... Riverine – Complex
9. Wetland is fringing a lake or reservoir.......................................................... Lacustrine – Naturally Occurring
10. Wetland inundation controlled by relatively natural hydroperiod. ............... Lacustrine – Artifially Flooded
11. Topographic depression without surface water inlets, outlets or other connections. .................................................. Depression – Closed
12. Wetland is a naturally occurring feature of the landscape............................ Depression – Closed, Beaver Impounded
13. Wetland inundation controlled by dam releases. ........................................ Lacustrine – Artifially Flooded
14. Wetland is fringing a lake or reservoir.......................................................... Lacustrine – Artifially Flooded
15. Wetland would be under influence of tides if not for human actions, e.g., diked. ... Tidal – Human Altered
16. Wetland is naturally under influence of tides. ................................................................. Tidal – Naturally Occurring
17. Wetland is topographically flat and precipitation is a dominant source of water. ....... Flats – Mineral Soil
18. Wetland has a mineral soil.............................................................. Flats – Organic Soil
19. Wetland is associated with a nontidal stream channel, floodplain, or terrace. .....

6. Stream is 1st or 2nd order. ........................................................................ Riverine – Upper Perennial
7. Stream is 3rd order or higher. .......................................................................... Riverine – Lower Perennial
8. Wetland is part of a mosaic of small streams, floodplain features (former channels, depressions) and/or slope wetlands (supported by groundwater). ...................................................... Riverine – Complex
9. Wetland is fringing a lake or reservoir.......................................................... Lacustrine – Naturally Occurring
10. Wetland inundation controlled by relatively natural hydroperiod. ............... Lacustrine – Artifially Flooded
11. Topographic depression without surface water inlets, outlets or other connections. .................................................. Depression – Closed
12. Wetland is a naturally occurring feature of the landscape............................ Depression – Closed, Beaver Impounded
13. Wetland inundation controlled by dam releases. ........................................ Lacustrine – Artifially Flooded
14. Wetland is fringing a lake or reservoir.......................................................... Lacustrine – Artifially Flooded

---

* Adapted from Smith et al. (1995), Brooks et al. (2011), and personal experience of M.E. Kentula, USEPA.

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