

## **SUPPLEMENT TO THE DECISION DOCUMENT FOR NATIONWIDE PERMIT 33**

This document is a supplement to the national decision document for Nationwide Permit (NWP) 33, and addresses the regional modifications and conditions for this NWP in the State of Texas. In the State of Texas, the Galveston District is the lead district, and the Albuquerque, Fort Worth and Tulsa Districts also implement the NWP program in this state. While Fort Worth, Galveston and Tulsa Districts are in the Southwestern Division, Albuquerque District is in the South Pacific Division. The Southwestern and South Pacific Division Engineers have considered the potential individual and cumulative adverse environmental effects that could result from the use of this NWP in Texas, including the need for additional modifications of this NWP by imposing regional conditions to ensure that those individual and cumulative adverse environmental effects are no more than minimal. The Division Engineers have also considered the exclusion of this NWP from certain geographic areas or specific waterbodies. These regional conditions are necessary to address important regional issues relating to jurisdictional waters and wetlands. These regional issues are identified in this document. These regional conditions are being required to ensure that this NWP authorizes activities that result in no more than minimal individual or cumulative adverse environmental effects. This document also identifies regionally important high-value waters and other geographic areas in which this NWP should be regionally conditioned or excluded from NWP eligibility, as described below, to further ensure that the NWP does not authorize activities that may exceed the no more than minimal adverse effects threshold.

### **1.0 Background**

In the June 1, 2016, issue of the Federal Register (81 FR 35186), the U.S. Army Corps of Engineers (Corps) published its proposal to reissue 50 existing NWPs and issue two new NWPs. To solicit comments on its proposed regional conditions for these NWPs, the Galveston District, as the lead District, issued a public notice on June 7, 2016 and a subsequent public notice on January 12, 2017 for regional conditions that affect the State of Texas. The Galveston District also held an Interagency Meeting on July 13, 2016 for all federal and state resource agencies to discuss proposed Texas regional conditions. Additionally, the Districts mailed a full copy of the proposed 2017 NWPs on June 2, 2016 to each of the Recognized Tribes having prehistoric affiliation, historic tribes or aboriginal use in the State of Texas. The issuance of the NWPs was announced in the January 6, 2017, Federal Register notice (82 FR 1860). After the publication of the final NWPs, Corps Districts with regulatory jurisdiction in Texas collectively considered the need for regional conditions for this NWP. Their findings are discussed below.

## **2.0 Consideration of Public Comments**

In response to our two public notices, we received comments from Region 6 of the Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), Texas Parks and Wildlife Department (TPWD), Texas Commission on Environmental Quality (TCEQ), Texas Department of Transportation (TxDOT), Sierra Club, Texas Pipeline Association, Freese and Nichols Inc., Perennial Environmental Services, LLC, GPA Midstream Association, and W&M Environmental Group. In this section, Section 2.1 includes general comments from both public notices. Section 2.2 addresses comments specific to the regional conditions and includes the regional conditions published in the second public notice. Comments from both public notices are included and have been categorized in relation to the appropriate issue or topics addressed in the proposed regional conditions included in the second public notice.

### **2.1 General Comments**

#### **2.1.1 NWP 5 – Scientific Measuring Devices**

The EPA's July 22, 2016 letter recommended that scientific measuring devices and any structures or fills associated with the devices must be completely removed within 30 days upon completion of the use of the device to measure and record scientific data and the site restored. The quantity of discharged material and the volume of area excavated must not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line.

Response: NWP 5 requires removal and restoration of the site to pre-construction contours upon completion of use. To set an arbitrary 30-day requirement would preclude seasonal restrictions intended to minimize or avoid impacts to such environmental concerns as threatened and endangered species, migratory birds, or the life cycle of fishes protected. With the exception of flumes and weirs associated with these devices, which are already limited to 25 cubic yards of discharge, we believe the excavation and/or discharges associated with the temporary impacts associated with these devices does not constitute a more than minimal adverse impact.

#### **2.1.2 NWP 7 – Outfall structures and Associated Intake Structures**

The EPA's July 22, 2016 letter recommended that screening over the mouth of associated intake structures shall have a mesh size no larger than 2 mm; Intake structure velocities shall not exceed 0.5 feet per second; The intake structure shall be positioned to minimize impingement/entrainment of sensitive life stages of aquatic species, e.g., recessed away from the waterway, positioned perpendicular to the predominant direction of flow.

Response: NWP 7 requires preconstruction notice in accordance with General Condition 32 and prohibits the authorization of intake structures unless they are associated with National Pollutant Discharge Elimination System (NPDES) approved

outfall structures. Rather than establish general requirements in a regional condition, we will evaluate proposed intake structures on a case-by-case basis in accordance with General Condition 2 Aquatic Life Movements.

### **2.1.3 NWP 10 – Mooring Buoys**

The EPA's July 22, 2016 letter recommended the Corps prohibit mooring buoys in areas mapped as seagrass habitat.

Response: Activities authorized by NWP 10 do not result in losses of aquatic resources and, as a general rule, do not require compensatory mitigation. Mooring buoys are generally located in open waters and float on those waters; the anchor used to secure the mooring buoy occupies little of the bottom of the waterbody. We have also considered that mooring buoys can help reduce the adverse effects the use of vessels can have on bottom habitat of navigable waters by reducing the use of anchors that disturb bottom habitat each time they are used. We recognize the potential that improperly placed mooring buoys may result in more than minimal adverse environmental effects to sea grasses, coral reefs, and oyster reefs. We have developed Regional Condition 18 which will require the pre-construction notification in vegetated shallows and coral reefs, including oyster reefs, as defined in 40 CFR 230.43 and in 40 CFR 230.44 respectively.

### **2.1.4 NWP 11 – Temporary Recreational Structures**

The EPA's July 22, 2016 letter recommended we prohibit the placement of any temporary structures in any areas mapped with seagrasses.

Response: As discussed above, we recognize the potential that improperly placed temporary structures may result in more than minimal adverse environmental effects so we have included NWP 11 with NWP 10 in Regional Condition 18.

### **2.1.5 NWP 13 – Bank Stabilization**

The EPA's July 22, 2016 letter recommended that any requests to waive the 500 linear foot limitation for the intermittent and ephemeral streams must include: 1) A narrative description of the stream. This should include known information on: volume and duration of flow; 2) the approximate length, width, and depth of the waterbody and characteristics observed associated with the Ordinary High Water Mark (e.g., bed and bank, wrack line, or scour marks); 3) a description of the adjacent vegetation community, including a statement as to if the area is upland or wetland; surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information; 4) An analysis of the proposed impacts to the waterbody.

Response: In response to concerns raised on stream impacts, Galveston District developed Regional Condition 28, the Fort Worth District developed Regional Condition 12, and Albuquerque District developed Regional Condition 8 which address cumulative

loss of streams in the region. We believe these regional conditions will assure that no more than minimal adverse environmental effects will occur under the NWP program.

The July 22, 2016 and February 10, 2017 TPWD letters recommended that NWP 13 should be limited to less than 300 linear feet in non-tidal areas where state and/or federally-listed threatened or endangered freshwater mussel species habitat currently exists. In addition, a District Engineer case-by-case waiver should not be authorized under NWP 13 for discharges of dredge and fill material into these state designated freshwater mussel sites and the 18 mussel sanctuaries where known populations of state- and/or federally-listed threatened and endangered freshwater mussels currently exist (31 TAC §57.157(d)(2)(A)-(P)).

Response: We believe that TPWD's request to restrict NWP 13 in state designated areas for known mussel habitat addresses their request to designate Critical Resource Waters. We will initiate the process with TPWD to designate these waters independent of the process to authorize the 2017 NWPs.

### **2.1.6 NWP 16 – Return Water from Upland Contained Disposal Areas**

The TCEQ's January 29, 2016 letter recommends that the Corps include a condition that decant water from upland confined disposal areas not exceed 300 mg/L total suspended solids (TSS). The current practice requires applicants to obtain water quality certification from TCEQ for use of NWP 16 contingent on their agreement not to exceed 300 mg/L TSS. Including the 300 mg/L TSS limit in the Corps' Regional Condition would streamline the NWP 16 process for permit applicants, eliminate potential confusion regarding an applicant's regulatory requirements, and simplify the determination of when those requirements have been satisfied and an applicant may commence dredging operations.

Response: If the TCEQ issues a 401 water quality certification with reasonably implementable or enforceable special conditions, we will include these special conditions as conditions of the NWP.

### **2.1.7 NWP 18 – Minor Discharges**

The EPA's July 22, 2016 letter recommended that any activity associated with a proposed discharge into tidal waters, including tidal wetlands that does not require access or proximity to or siting within tidal waters and wetlands to fulfill its basic purpose, i.e., is not "water-dependent", the Corps shall provide the pre-construction notification to EPA, National Oceanic and Atmospheric Administration (NOAA), USFWS, TCEQ/ Texas Railroad Commission (TRRC), and TPWD for individual review.

Response: As demonstrated by our 404(b)(1) Guidelines analyses provided in the national and supplemental decision documents, we have determined that the activities authorized by the NWPs do not result in significant degradation. Alternatives analyses are not required for specific activities authorized by NWPs (see 40 CFR 230.7(b)(1)).

The NWP terms for discharges into tidal waters for many of the NWPs require pre-construction notice for tidal waters. In addition, Galveston District developed Regional Conditions 16, 17, 18, 19, 22, and 25 identifying restrictions and additional pre-construction notification requirements in tidal waters.

### **2.1.8 NWP 21 – Surface Coal Mining Activities**

The USFWS's July 21, 2016 letter recommended the Corps revoke NWP 21 for surface coal mining activities within the State of Texas. In their experience, surface coal mining projects are among the most impactful to fish and wildlife resources and should all receive an individual permit review.

Response: The activities authorized by NWP 21 must already be authorized, or are currently being processed, by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 or as part of an integrated permit processing procedure by the Department of the Interior, Office of Surface Mining Reclamation and Enforcement. Since the Office of Surface Mining or the state has authority over the entire coal mining activity, and the Corps has jurisdiction only over activities that involve discharges of dredged or fill material into waters of the U.S and/or structures or work in navigable waters, we have concluded that the terms of NWP 21, the NWP general conditions, and Regional Conditions 4, 8, 12, 16 and 28, will ensure that no more than minimal individual or cumulative adverse environmental effect to waters of the U.S. will occur in the region as a result of NWP 21.

### **2.1.9 NWP 29 – Residential Developments**

The EPA's July 22, 2016 letter recommended that wetlands, which are located within the platted lot lines of any residential subdivision, will be considered adversely affected, unless the wetlands are protected by a protective covenant, (e.g., conservation easement or deed restriction), or any other real estate mechanism that can demonstrate to the District Engineer that these areas will be protected and preserved in perpetuity. Those wetlands considered adversely affected may require additional project-specific compensatory mitigation or review under other Federal permitting procedures.

Response: A loss of waters of the U.S. is defined as permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Waters of the U.S. temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the U.S. Impacts resulting from activities that do not require Department of the Army authorization, are not included in the measurement of loss of waters of the U.S.

We have concluded that the subdivision provision of this NWP, the requirements of General Condition 15 (single and complete project), and Regional Conditions 4, 8, 12, 16, and 28 will limit the adverse environmental effects so that they are no more than

minimal. Those projects determined to have more than minimal adverse and cumulative effects will require an individual permit.

The EPA's July 22, 2016 letter recommended that the total area of non-tidal waters of the U.S., including wetlands, lost as a result of the discharge shall not exceed 40% of the total lot area, except for those lots which are less than 0.25 acres in size, in which case the loss of non-tidal waters of the U.S., including wetlands, shall not exceed 0.10 acres. Furthermore, in no circumstances would the loss of non-tidal waters of the U.S., including wetlands, resulting from a discharge authorized by this NWP or a combination of this and other NWPs exceed 0.25 acres. For purposes of this regional condition, loss is defined to include any filled area previously permitted, the fill area currently being authorized, and any other waters of the U.S., including wetlands, that are adversely affected by flooding, excavation, or drainage as a result of the project.

The EPA's July 22, 2016 letter recommended that individuals who wish to use this NWP must compensate for the loss of waters of the U.S., including wetlands, where the loss would be greater than 0.05 acre, unless the applicant demonstrates, to the satisfaction of the District Engineer, that the adverse effects are minimal without mitigation. In such cases, the applicant would submit justification explaining why compensatory mitigation should not be required by the Corps. A functional or conditional assessment on the aquatic resources would also be incorporated as a component of this document.

The EPA's July 22, 2016 letter recommended that this NWP not authorize the loss of waters of the U.S., including wetlands, located within a 100-year floodplain.

Response: Regional Conditions 4, 8, 12, 16 and 28 identify regional thresholds for notification, compensatory mitigation, and limit stream loss. We believe that these conditions, combined with the existing NWP 29 requirements and the NWP general conditions ensure that no more than minimal adverse environmental effects occur in the region as a result of NWP 29. General Condition 10, fills in 100-year floodplains, states that all NWP activities must comply with applicable FEMA-approved state or local floodplain management requirements. We do not agree that waters of the U.S. located in a 100-year floodplain constitute a more than minimal adverse effect and decline to revoke the use of NWP 29 in these waters.

The EPA's July 22, 2016 letter recommended this NWP may be used only once by an individual.

Response: General Condition 15 requires each NWP activity to be a single and complete project, and states that the same NWP cannot be used more than once for the same single and complete project. This condition addresses the EPA's request and no change is recommended.

The EPA's July 22, 2016 letter recommended that pre-construction notification to the District Engineer shall include a sketch plan depicting the proposed footprint of fill. The sketch plan would also include the property dimensions; building setbacks; wetland

boundaries; acreage of the proposed wetland loss; location and acreage of any previously permitted wetland fills; location(s) of any streams, drainage courses, and floodplain limits; location of proposed house, driveway, and utilities; and a compensatory mitigation proposal. The wetland boundary would be determined by a trained wetland delineator.

Response: When a pre-construction notice is required, General Condition 32(b) states that the description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the District Engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. If the applicant does not provide sufficient information to demonstrate compliance with the requested NWP, general conditions and regional conditions, we will require the applicant to provide additional information prior to verification. If the applicant cannot demonstrate compliance with the NWP, general conditions or regional conditions, we will evaluate the application under the Individual Permit process.

The EPA's July 22, 2016 letter recommended that, applicable to all perennial and intermittent streams, the Corps shall provide a copy of the pre-construction notification, including any supporting documentation, to EPA, TCEQ, NMFS, USFWS, and TPWD where the work does not result in: 1) A culvert measuring greater than 24 inches in diameter being depressed 12 inches below the stream bottom; or 2) A culvert measuring 24 inches or less in diameter being depressed 6 inches below the stream bottom; 3) NOTE: Extensions of existing culverts that are not depressed below the stream bottom do not require submission of the requested information as part of the pre-construction notification. The pre-construction notification shall include a narrative documenting measures evaluated to minimize disruption of the movement of aquatic life, as well as specific documentation concerning site conditions, limitations, and/or engineering factors that prohibit meeting culvert depression requirements. This documentation must also include photographs documenting site conditions.

Response: In addition to the hydraulic and biological function the EPA seeks to maintain with their preferred culvert construction method, the culvert and/or bridging design must also consider construction and highway traffic and earth loads; therefore, their design involves both hydraulic and structural design. Due the potential liability of the federal government, we do not establish a preference for construction methods.

#### **2.1.10 NWP 30 - Moist Soil Management for Wildlife**

The EPA's July 22, 2016 letter recommended that the proposed regional conditions be revised to add that use of NWP 30 requires that, prior to doing the work, the permittee must submit a pre-construction notification to the District Engineer, in accordance with the current Corps permit application procedures.

Response: NWP 30 only authorizes ongoing wetland soil management activities so that habitat and feeding areas can continue to support target wildlife populations. It does not authorize any losses of jurisdictional wetlands. We do not believe requiring a pre-

construction notice is necessary to assure no more than minimal individual or cumulative adverse environmental effects occur in the region as a result of this NWP.

### **2.1.11 NWP 33 – Temporary Construction, Access, and Dewatering**

The EPA's July 22, 2016 letter recommended that for causeways and cofferdams constructed under this NWP, the following applies: 1) Earthen cofferdams and cofferdams of dredged and/or fill material shall not be used due to problems with sedimentation of the waterway during installation and removal of the earthen (fine material) component. Causeways shall consist of only clean rock; 2) Causeways and cofferdams shall extend no more than 1/2 the width of the waterway, and sufficient conveyance of the waterways shall be provided to preclude damage to property or the environment resulting from increased water surface elevations.

Response: NWP 33 requires that appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. In addition, fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. We have also developed Regional Conditions 13 and 22 which identify regional thresholds for notification in addition to the navigable waters requirement. We believe the NWP 33 requirements, NWP general conditions, and regional conditions will result in no more than minimal individual and cumulative adverse environmental effects.

The EPA's July 22, 2016 letter recommended that temporary crossings of wetlands shall be avoided if an alternate location is possible. Where wetland impacts cannot be avoided, timber mats, construction pads, geotextiles or other similar devices shall be used to avoid consolidation of temporary road materials into the wetland substrate.

Response: As demonstrated by our 404(b)(1) Guidelines analyses provided in the national and supplemental decision documents, we have determined that the activities authorized by the NWPs do not result in significant degradation. Alternatives analyses are not required for specific activities authorized by NWPs (see 40 CFR 230.7(b)(1)).

The EPA's July 22, 2016 letter recommended that restoration plans for disturbed wetlands and stream banks shall include a planting plan identifying specific species to be planted. Re-vegetation with species similar to those that pre-existed should be used, unless site specific conditions justify a change. The type of re-vegetation should be in-kind, e.g., herbaceous species replaced with same, shrub species replaced with same, and tree species replaced with same.

Response: The preconstruction notification for NWP 33 must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to preproject conditions. We will evaluate restoration plans in accordance with our standard operating practices.

The EPA's July 22, 2016 letter stated that the Corps shall provide the required preconstruction notification to EPA, TCEQ, NMFS, USFWS, and TPWD for individual

coordination when: 1) The activity affects more than 0.5 acre of tidal waters, including jurisdictional tidal wetlands; or 2) The activity affects more than 200 linear feet of a nontidal stream.

Response: The Galveston District will require all NWP 33s to submit a pre-construction notification and will coordinate impacts with the agencies when they exceed 0.5 acres in tidal waters or 200 linear feet of stream.

### **2.1.12 NWP 35 – Maintenance Dredging of Existing Basins**

The EPA's July 22, 2016 letter recommended the proposed regional conditions be revised to add that use of NWP 35 require a pre-construction notification in the following locations: 1) San Jacinto Waste Pits Area of Concern (analyze for dioxin); 2) Houston Ship Channel (analyze for dioxin); 3) Texas City Channel, south and west of the Texas City Dike; 4) Galveston Ship Channel; 5) "Inland portion" of Bayport Channel; 6) Barbour's Cut; 7) Lower San Jacinto River, south of San Jacinto Waste Pits Area of Concern; 8) Port Arthur Ship Canal; 9) Lower Neches River, from Beaumont to Sabine Lake; 10) Point Comfort; 11) Corpus Christi Inner Harbor; and 12) Port of Brownsville, southwest of the "Fishing Port of Brownsville". The pre-construction notification required for use of the NWP in these locations must include dredged material testing results, no more than three years old, collected as per the appropriate testing manual, e.g., Inland Testing Manual, Upland Testing Manual.

Response: Testing of dredged material is not always mandatory, even in instances where dredged material may contain a certain level of contaminants, as described in 40 CFR 230.6. The testing manuals, when required, already require testing evaluation to not exceed three years or the dredging cycle, whichever is longest, unless there is reason to believe conditions have changed. NWP 35 is for maintenance of existing basins and requires placement of the material outside of waters of the U.S., therefore there is no Section 404 permit required. Maintenance dredging activities in areas with known or suspected sediment contaminants can use best management practices and other techniques to minimize the adverse environmental effects that might be caused by exposure of those contaminants during dredging. Those upland placement areas that have a return water will be subject to NWP 16. If the TCEQ issues a 401 water quality certification which includes conditions, we will include these special conditions as conditions of the NWP.

The EPA's July 22, 2016 letter recommended maintenance dredging area must have been previously authorized by the Corps and prior maintenance dredging had to be completed no more than five years prior to the current proposal. Maintenance dredging authorized by this NWP shall be limited to the dimensions (width and depth) of previously authorized dredging.

Response: NWP 35 only authorizes the removal of accumulated sediment for maintenance of previously authorized facilities. Five-year timeframes are generally related to dredge testing requirements which has been addressed above.

### **2.1.13 NWP 36 - Boat Ramps**

The EPA's July 22, 2016 letter recommended that requests to waive the 20-foot width limitation for the intermittent and ephemeral streams must include: 1) A narrative description of the stream. This should include known information on: volume and duration of flow; 2) the approximate length, width, and depth of the waterbody and characteristics observed associated with the Ordinary High Water Mark (e.g. , bed and bank, wrack line, or scour marks); 3) a description of the adjacent vegetation community, including a statement as to if the area is upland or wetland; surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information; 4) An analysis of the proposed impacts to the waterbody.

Response: While we do not anticipate many boat ramps proposed on ephemeral and intermittent streams, the waiver will require a pre-construction notice including a written determination concluding that the discharge will result in no more than minimal adverse environmental effects. The notice will include a description, including sketches, of the proposed activity that provides sufficient detail to determine that the adverse environmental effects of the activity will be no more than minimal. NWP 36 is not authorized for use in special aquatic sites, including wetlands.

### **2.1.14 NWP 39 - Commercial and Institutional Developments**

The EPA's July 22, 2016 letter recommended that under the terms of this NWP, wetlands, which are located within the platted lot lines of any commercial or institutional subdivision, will be considered adversely affected, unless the wetlands are protected by a protective covenant, (e.g., conservation easement or deed restriction), or any other real estate mechanism that can demonstrate to the District Engineer that these areas will be protected and preserved in perpetuity. Those wetlands considered adversely affected may require additional project-specific compensatory mitigation or review under other Federal permitting procedures.

Response: A loss of waters of the U.S. is defined as permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Waters of the U.S. temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the U.S. Impacts resulting from activities that do not require Department of the Army authorization, are not included in the measurement of loss of waters of the U.S.

The terms of NWP 39, the requirements of General Condition 15 (single and complete project), and the application of the definition of single and complete nonlinear project, and Regional Conditions 4, 8, 12, 16 and 28 will limit the environmental impacts so that they are no more than minimal. Any proposed NWP 39 activity that will result in more than minimal adverse environmental effects, after considering the mitigation proposal provided by the applicant will require an individual permit.

The EPA's July 22, 2016 letter recommended for all perennial and intermittent streams that the Corps shall provide a copy of the pre-construction notification, including any supporting documentation, to the EPA, NMFS, USFWS, TCEQ, and TPWD, where the work does not result in: 1) A culvert measuring greater than 24 inches in diameter being depressed 12 inches below the stream bottom; or 2) A culvert measuring 24 inches or less in diameter being depressed 6 inches below the stream bottom. NOTE: Extensions of existing culverts that are not depressed below the stream bottom do not require submission of the requested information as part of the pre-construction notification.

Response: In addition to the hydraulic and biological function the EPA seeks to maintain with their preferred culvert construction method, the culvert and/or bridging design must also consider construction and highway traffic and earth loads; therefore, their design involves both hydraulic and structural design. Due the potential liability of the federal government, we do not establish a preference for construction methods.

#### **2.1.15 NWP 42 – Recreational Facilities**

The EPA's July 22, 2016 letter recommended that for activities affecting perennial and intermittent streams the Corps shall provide a copy of the pre-construction notification, including any supporting documentation, to the EPA, NMFS, USFWS, TCEQ, and TPWD, where the work does not result in: 1) A culvert measuring greater than 24 inches in diameter being depressed 12 inches below the stream bottom; or 2) A culvert measuring 24 inches or less in diameter being depressed 6 inches below the stream bottom. NOTE: Extensions of existing culverts that are not depressed below the stream bottom do not require submission of the requested information as part of the pre-construction notification. The pre-construction notification shall include a narrative documenting measures evaluated to minimize disruption of the movement of aquatic life, as well as specific documentation concerning site conditions and limitations on depressing the culvert, and engineering factors that prohibit depressing the culvert. This documentation must also include photographs documenting site conditions.

Response: In addition to the hydraulic and biological function the EPA seeks to maintain, the culvert and/or bridging design must also consider construction and highway traffic and earth loads; therefore, their design involves both hydraulic and structural design. Due the potential liability of the federal government, we do not establish a preference for construction methods. Regional Conditions 4, 8, 12, 16, and 28 identify regional thresholds for compensatory mitigation and limit stream loss. We believe that these conditions, combined with the existing NWP 42 requirements and the NWP general conditions ensure that no more than minimal adverse environmental effects occur in the region as a result of NWP 42.

#### **2.1.16 NWP 43 – Stormwater Management Facilities**

The EPA's July 22, 2016 letter stated that NWPs cannot be used to authorize a storm water detention/retention facility in a perennial stream. A Department of the Army standard permit application is required for these projects.

Response: This NWP does not authorize discharges of dredged or fill material into waters of the U.S. for the construction of new stormwater management facilities in perennial streams.

The EPA's July 22, 2016 letter stated the pre-construction notification for NWP 43 must also include the following information: 1) A clear statement of the basic (primary) purpose of the detention/retention facility; 2) A description of the upland-based facility/system that will be utilized to pre-treat storm water prior to discharge into the in-stream/wetland detention/retention facility; 3) A detailed alternatives analysis pursuant to the Section 404(b)(1) Guidelines of the Clean Water Act. This analysis must demonstrate that all other available storm water and sediment/erosion treatment controls will be implemented and that in-stream detention/retention is the only available practicable alternative that would meet the basic project purpose. This analysis shall also include all project site specific factors that may render other storm water detention/retention measures impractical, such as: steep slopes; rock substrate; narrow floodplain; and pre-existing development.

Response: As demonstrated by our 404(b)(1) Guidelines analyses provided in the national and supplemental decision documents, we have determined that the activities authorized by the NWPs do not result in significant degradation. Alternatives analyses are not required for specific activities authorized by NWPs (see 40 CFR 230.7(b)(1)). The maintenance of stormwater management facilities, low impact development integrated management features, and pollutant reduction green infrastructure features that are not in waters of the U.S. do not require a section 404 permit.

### **2.1.17 NWPs 12 and 13**

The EPA's July 22, 2016 letter recommended that impacts to jurisdictional aquatic resources be suspended in National Park Service properties, federal wildlife refuges, National Estuarine Research Reserves, state parks and wildlife refuges, and state coastal preserves.

The July 22, 2016 and February 10, 2017 TPWD letters recommended a regional condition prohibiting the use of NWPs 12 and 13 for discharges into Critical Resource Waters and their adjacent wetlands.

Response: Per NWP General Condition 22, NOAA-managed marine sanctuaries and marine monuments and National Estuarine Research Reserves are considered designated critical resource waters (DCRW). Per General Condition 22, NWP 12 is not authorized for use in a DCRW, and NWP 13 requires a pre-construction notification. No Department of the Army permit, whether general permit or individual permit, obviates the need for any project to also have approval or authorization from the National Park Service, or other federal or state agencies that manages their properties, refuges, or preserves. Revoking NWPs 12 and 13 in areas that have not been determined to be DCRWs would negatively affect the ability of these federal and state agencies to utilize the NWP program for their own minor projects which may impact waters or wetlands

subject to Corps jurisdiction, but that are on properties they own or manage. Revoking NWP 13 in DCRWs would eliminate a streamlined permitting process that may be used to facilitate protection of these DCRWs. We will make a case-by-case determination on proposed NWP 13s to assure that no more than minimal adverse environmental effects result from the use of this NWP in DCRWs.

#### **2.1.18 All Nationwide Permits, Excluding Nationwide Permits 12 and 13**

The EPA's July 22, 2016 letter recommended impacts to jurisdictional aquatic resources in National Park Service properties, federal wildlife refuges, National Estuarine Research Reserves, state parks and wildlife refuges, and state coastal preserves, require the applicant to notify the District Engineer in accordance with the NWP General Condition 32, Pre-Construction Notification, and for the Corps to coordinate with the resource agencies as specified in NWP General Condition 32(d), including EPA, USFWS, NMFS, TPWD, and TCEQ/TRRC.

Response: We believe requiring pre-construction notification and agency coordination based on the proposed projects location on state or federally owned lands would negatively affect the ability of these state and federal agencies to utilize the NWP program for their own minor projects. The NWP terms, general conditions, and regional conditions ensure that no more than minimal adverse environmental effects occur in the region as a result of NWP, regardless of property ownership.

#### **2.1.19 Nationwide Permits 12, 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52**

The EPA's July 22, 2016 letter recommended any requests to waive the 300 linear foot limitation for the intermittent and ephemeral streams must include: 1) A narrative description of the stream. This should include known information on: volume and duration of flow; 2) the approximate length, width, and depth of the waterbody and characteristics observed associated with the Ordinary High Water Mark (e.g., bed and bank, wrack line, or scour marks); 3) a description of the adjacent vegetation community, including a statement as to if the area is upland or wetland; surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information; 4) An analysis of the proposed impacts to the waterbody.

Response: When a pre-construction notice is required, General Condition 32(b) states that the description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the District Engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. If the applicant does not provide sufficient information to demonstrate compliance with the requested NWP, general conditions, and regional conditions the Corps will require the applicant to provide additional information prior to verification. If the applicant cannot

demonstrate compliance with the NWP, general conditions and/or regional conditions the Corps will evaluate the application under an Individual Permit process. Galveston District has developed Regional Condition 28 which will require review under an individual permit process for stream impacts greater than 300 linear feet.

#### **2.1.20 NWPs 53 Removal of Low-Head Dams**

The USFWS's July 21, 2016 letter recommended we coordinate all NWP 53 proposals with the resource agencies in accordance with General Condition 32(d).

The TPWD July 22, 2016 letter recommended we require agency coordination for all proposed uses of NWP 53, in addition to the proposed pre-construction notification requirement.

Response: Due to the potential for head cutting and/or stream avulsion resulting from the change in the sediment transport system, the Galveston District developed Regional Condition 27 requiring that NWP 53 be coordinated with the agencies in accordance with General Condition 32. The regional differences between similar aquatic resources in a large geographic area such as Texas do not warrant a blanket conclusion that removal of a low-head dam will result in a more than minimal effect in every stream in Texas. NWP 53 requires pre-construction notification during which the other Districts in Texas will make case-by-case determinations to assure the proposed activity will result in no more than minimal individual or cumulative adverse environmental effect.

#### **2.1.21 All Nationwide Permits Authorizing Culverts**

The EPA's July 22, 2016 letter recommend the following restrictions on culverts for perennial streams, be added to the proposed regional conditions: 1) The width of the base flow culvert(s) shall be approximately equal to the average channel width. Culvert(s) shall not permanently widen/constrict the channel or reduce/increase stream depth. Multiple pipe culverts may not be used to receive base flows; 2) Bank-full flows shall be accommodated through maintenance of the existing bank-full cross-sectional area; 3) The upstream and downstream invert of culverts (except bottomless culverts) installed in perennial streams will be buried/embedded to a depth of 20% of the culvert height to allow natural substrate to colonize the structure's bottom and encourage fish movement; 4) Culvert slope shall be consistent with average stream segment slope, but shall not exceed 4 percent; 5) Culverts shall be of adequate size to accommodate flooding and sheet flow in a manner that does not cause flooding of associated uplands or disruption of hydrologic characteristics that support aquatic sites on either side of the culvert; 6) Where adjacent floodplain is available, flows exceeding bankfull shall be accommodated by installing equalizer culverts at the floodplain elevation; 7) Unless specifically described in the pre-construction notification, use of undersized culvert to attain storm water management or waste treatment is not authorized.

Response: In addition to the hydraulic and biological function the EPA seeks to maintain with their preferred culvert construction method, the culvert and/or bridging design must also consider construction and highway traffic and earth loads; therefore, their design involves both hydraulic and structural design. Due the potential liability of the federal government, we do not establish a preference for construction methods.

### **2.1.22 NWP General Condition 18**

The USFWSs' July 21, 2016 letter recommended we incorporate language into the regional conditions for review of projects, authorized by NWP and requiring pre-construction notification, through the USFWS's Information, Planning and Consulting IPaC website. A regional condition requirement for "A copy of the USFWS "Information, Planning and Consultation (IPaC)" printout identifying federally-listed threatened and endangered species that may occur in the vicinity of the project site <http://ecos.fws.gov/ipac/>" would be an additional prompt to applicants to provide this information to the Corps along with their pre-construction notification.

Response: We believe General Condition 18 and our local procedures described in Section 4.2 of this document are sufficient to assure compliance with the requirements of Section 7 of the Endangered Species Act (ESA).

### **2.1.23 Designated Critical Resource Waters**

The July 22, 2016 and February 10, 2017 TPWD letters recommended that we develop a new statewide regional condition that formalizes and lists the state-designated areas (GEMS, State Coastal Preserves, Sanctuaries, State Scientific Areas, and Ecologically Significant Stream Segments) as Critical Resource Waters.

The July 22, 2016 and February 10, 2017 TPWD letters recommended we develop a new statewide regional condition that formalizes and lists state designated areas for known mussel habitat that prohibits use of NWPs without prior coordination with TPWD.

The July 22, 2016 and February 10, 2017 TPWD letters recommended that for all discharges, work, dredging activities, or dewatering activities proposed in non-tidal waters in which state- and/or federally-listed freshwater mussels species are known to occur (listed in TPWD's Texas Natural Diversity Database) and/or are within one of the 18 listed Texas protected mussel sanctuaries (31 TAC §57.157(d)(2)(A)(P)), we should require the applicant to notify the Galveston District Engineer in accordance with the NWP General Condition 32 (pre-construction notification). In addition, District waivers for discharges of fill material and dredge material should not be allowed in these areas.

Response: The designation as a DCRW under NWP General Condition 22 is an important component of the NWP program assuring that impacts to environmentally and ecologically important waters are not more than minimal. Nationally, DCRWs include NOAA-managed marine sanctuaries and marine monuments and National Estuarine

Research Reserves. The District Engineer may also designate, after notice and opportunity for public comment, additional waters having particular environmental or ecological significance.

The designation as a DCRW prohibits the public, as well as state and federal agencies, from using 18 specific NWP within, or directly affecting, CRWs, including wetlands adjacent to DCRWs. Prohibited NWPs will include those used to construct pipelines, utility lines, roads, residential homes, conduct maintenance dredging, as well as some agricultural practices and storm water management. Applicants seeking authorization for these activities will be required to apply for an individual permit.

In addition to the 18 revoked NWPs, another 19 NWPs will have restrictions placed on them requiring applicants to go through additional administrative procedures and environmental review as outlined in General Condition 32 prior to being verified. Restricted NWPs will include those commonly used to conduct routine maintenance, stabilize shorelines, remove derelict vessels, restore aquatic resources, and manage moist soil units. Those activities determined to have more than minimal adverse impacts to the DCRW will be required to apply for an individual permit.

We believe that TPWD's request to restrict NWPs in state designated areas for known mussel habitat should be addressed concurrently with their request to designate Critical Resource Waters rather than as a regional condition. We will initiate the process with TPWD to designate these waters in an independent public notice process in compliance with NWP General Condition 22.

#### **2.1.24 Streams**

The USFWS recommended we require pre-construction notification, resource agency coordination in accordance with General Condition 32(d), and a compensatory mitigation proposal for all NWP authorizations that result in stream bed losses in excess of 50 linear feet for all natural and restored streams. The USFWS seeks to minimize losses of streams and associated habitat from the discharge of non-native materials (e.g., rock, riprap, articulated concrete block, etc.) and/or placement of culverts (which impact aquatic life movements even if they are placed to pass low flows), as even NWP-threshold impacts (i.e., 300 linear feet) can de-stabilize local stream channels to the detriment of fish and wildlife resources. For example, Wheeler (2005) notes a variety of negative effects from culverts, including poor internal habitat (due to low bottom complexity and uniformly high velocities) and barriers to fish movement (shallow depths, development of sediment bars, and/or vertical drops at outflows, etc.).

Response: Regional Conditions 4, 8, 12, 16, and 28 identify regional thresholds for notification, compensatory mitigation, and limit stream loss. We believe that these regional conditions, combined with the existing NWP requirements and the NWP general conditions ensure that no more than minimal individual or cumulative adverse environmental effects occur to streams in the region as a result of NWPs.

### **2.1.25 Executive Order 13771 and White House Chief of Staff Memorandum entitled “Regulatory Freeze Pending Review.”**

The Texas Pipeline Association February 13, 2017 letter stated the proposed regional conditions in the NWP's cannot be finalized without a review conducted under new executive order 13771 and memorandum.

**Response:** The regional conditions are permit conditions added to a permit rule that was promulgated and published in the Federal Register on Jan. 6, 2017 (82 FR 1860); prior to the issuance of EO 13771. In addition, the Office of Management and Budget's Office of Information and Regulatory Affairs granted an exemption to the White House Chief of Staff memorandum entitled “Regulatory Freeze Pending Review” for the 2017 Nationwide Permits.

### **2.1.26 Climate Change**

The Sierra Club's January 21, 2017 letter recommended we require preparation of a Climate Change Ecological Resilience and Resistance Plan (CCERRP) for all NWP's.

Response: The NWP's are, and will be, an important tool for climate change adaptation, to fulfill the needs of society and communities, and to avoid and minimize adverse effects to jurisdictional waters and wetlands that help provide resilience to changing environmental conditions.

The Sierra Club's January 21, 2017 letter suggested that a “minimum one-for-one ratio for all special aquatic site losses” is inadequate to ensure that “no net wetland loss” is attained. They advised that Washington U.S. Environmental Protection Agency, on February 23, 2011, held a wetlands team assessment meeting at the Corps Galveston District office and provided information that the Gulf of Mexico, including Texas, was losing wetlands at a higher rate than many other regions in the U.S.

Response: Each District evaluates the need for compensatory mitigation in accordance with their standard operating practices and procedures to assure that the NWP program result in no more than minimal individual or cumulative adverse environmental effect to aquatic resources in our region. We do not regulate all wetlands in the State of Texas, only those wetlands that are determined to be waters of the U.S.

## **2.2 Proposed Regional Conditions**

To solicit comments on the following proposed regional conditions for the 2017 NWP's, the Galveston District, as the lead District, issued a public notice on January 12, 2017 for the proposed regional conditions that affect the State of Texas. Below are the proposed regional conditions for NWP 33 as they were published in the January 2017 public notice. Regional Conditions 1-3 applied to the entire State of Texas. Regional Condition 4 applied in Albuquerque, Fort Worth, and Galveston Districts only. Regional

Conditions 5-10 applied in Albuquerque District only. Regional Conditions 11-15 applied in Fort Worth District only. Regional Conditions 16-29 applied in Galveston District only, and Regional Conditions 30 and 31 only applied in Tulsa District only.

**2.2.1 Proposed Regional Condition 2 states:** For all activities proposed for authorization under NWP in Palustrine and Lacustrine aquatic resource types, best management practices (BMPs) are required to reduce the risk of transferring zebra mussels to or from project sites. The following BMPs, as a minimum, will be required: A) Clean: Clean both the inside and outside of equipment and gear, by removing all plants, animals, and mud and thoroughly washing the equipment using a high pressure spray nozzle. Equipment operated or stored in a water body on the Texas list of zebra mussel (*Dreissena polymorpha*) infected water bodies shall be decontaminated in accordance with State of Texas law prior to relocation; B) Drain: Drain all water from receptacles before leaving the area, including livewells, bilges, ballast, and engine cooling water on boats and; C) Dry: Allow time for your equipment to dry completely before relocating in other waters. Minimum drying time is one week. Equipment operated or stored in a water body on the Texas list of zebra mussel (*Dreissena polymorpha*) infected water bodies shall be dried a minimum of 20 days prior to relocation. High temperature pressure washing (greater than or equal to 140F) or professional cleaning may be substituted for drying time.

TxDOT stated in their July 21, 2016 and February 7, 2017 letters that while they understand that BMPs specified in the regional condition are consistent with TPWD's current approach for preventing the spread of invasive zebra mussels, they requested that the 20-day minimum drying time requirement be omitted from the regional condition. Instead, TxDOT recommended the regional condition reference the online calculator for determining minimum drying time on a project-by-project basis. TPWD currently recommends use of an on line calculator in order to determine drying time. The online calculator bases recommended drying time on 1) location and 2) time of year, considering the average maximum relative humidity and average minimum temperature for both factors. TxDOT also understands that high-temperature pressure washing would effectively prevent the spread of zebra mussels, but facilities offering high-temperature pressure washing are not available throughout the state, which renders this an unviable option for permittees.

Perennial Environmental Services' February 10, 2017 letter recommend modifying this condition to exclude linear transportation projects or allow for some watershed exclusions. Even through careful routing design, it is not uncommon for linear transportation projects to cross dozens of palustrine aquatic resource types during construction. Linear transportation projects would take exponentially longer to complete if per crossing equipment drying or cleaning expectations were established; which would result in prolonged, unnecessary, and increased disturbances within both upland areas and waters of the United States. Additionally, by cleaning equipment on-site with high pressure water you are greatly increasing the potential for hydrocarbon laden wastewater to be introduced to the environment. Economically, this would result in substantial construction delays, idle equipment, and price increases for commodities

delivered via linear transportation systems within Texas and nationally. We also suggest further defining “before relocating to other waters”. This can be interpreted as every palustrine “Water of the United States” crossed by a given project regardless of proximal distance to another aquatic feature; by river basin; or by other hydrological means. We also suggest further defining “before relocating to other waters”. This can be interpreted as every palustrine water of the United States crossed by a given project regardless of proximal distance to another aquatic feature; by river basin; or by other hydrological means.

GPA Midstream’s February 12, 2017 letter requests that Corps remove this regional condition, as it has no direct bearing on dredging or placement of fill material in a Water of the U.S. There are existing state regulations and programs in the State of Texas governing the spread of zebra mussels and other invasive species; therefore, this requirement is unnecessary. If the Corps is unwilling to remove this requirement then GPA Midstream requests that Corps exempt pipeline projects from Regional Condition 2. The requirement could be overly burdensome for linear projects such as pipelines, which frequently encounter numerous palustrine aquatic resource types during construction of a single linear project. Often times when this occurs the aquatic resources are within relatively close proximity and contained within the same watershed. The proposed cleaning and drying requirements would add significant delays to project timelines and high temperature pressure washing could result in the deposition of other unwanted materials in waters of the US. The potential negative consequences of imposing Regional Condition 2 on pipeline projects far outweigh the minimal benefits that would be gained.

The Texas Pipeline Association February 13, 2017 letter recommended that the proposed Regional Condition 2 should be removed or, in the alternative, pipeline projects should be excepted from Regional Condition 2. The State of Texas already has a regulatory program in place to address the spread of zebra mussels, meaning that the proposed federal requirement would be duplicative or, even worse, inconsistent with the State program. As such the condition should be removed. In the alternative, Regional Condition 2 should contain an exception for pipeline projects, because the burden and delays associated with the zebra mussel cleaning and drying requirements along a long stretch of pipeline would greatly outweigh any environmental benefits that the requirements would provide.

Freese and Nichols’ February 10, 2017 letter recommend omitting the terms Palustrine and Lacustrine. However, if retained, the usage of the terms Palustrine and Lacustrine needs to be clarified. As written, this Regional Condition would pertain to all Palustrine and Lacustrine aquatic resources including Palustrine wetlands that never have water to support zebra mussels. We recommend revising the first sentence to read, "For all activities proposed for authorization under NWP in waterbodies listed on the Texas list of zebra mussel (*Dreissena polymorpha*) infected waterbodies (the Corps should provide a web link to this list), best management practices (BMPs) are required to reduce the risk of transferring zebra mussels to or from project sites."

Response: Since zebra mussels were first found in Texas in 2009, six Texas lakes in three river basins were fully infested by 2016, meaning they have an established, reproducing population and boats or other equipment can transfer them from these lakes to new areas. Zebra mussels have been found on isolated occasions in five other Texas lakes so we expect the list of infested state waters to increase. Applying the factors described in the TPWD calculator to develop a year-round, state-wide drying time that assures equipment being transferred from a zebra mussel infested waterbody does not pose a potential for transfer we concluded 20 days drying time is required. This regional condition provides a simple, repeatable requirement for the public and is limited to removing and relocating equipment from those water bodies on the Texas list of zebra mussel infected water bodies to another waterbody. To provide some flexibility, in accordance with state law, we have included high temperature pressure wash as an alternative to the 20 day drying time. Portable, high temperature pressure washers capable of temperatures in excess of 300 degrees Fahrenheit are readily available. Our intent of this regional condition was not to require these BMPs for equipment being relocated from a non-infested waterbody to a non-infested waterbody. We will revise the language to clarify that the BMPs are recommended in accordance with Texas Administrative Code, Title 31, Part 2, Chapter 57, Subchapter A when equipment is relocated from a state listed, zebra mussel infested waterbody to a non-infested waterbody.

**2.2.2 Proposed Regional General Condition 3 states:** For all activities proposed for authorization under NWP at sites approved as compensatory mitigation sites (either permittee-responsible, mitigation bank and/or in-lieu fee) under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899, the applicant shall notify the appropriate District Engineer in accordance with the NWP General Condition 32 (Pre-Construction Notification) prior to commencing the activity.

The TCEQ July 29, 2016 letter, stated the regional condition is newly proposed in this 2017 revision and requires that applicants notify the Corps prior to commencing activities proposed for authorization under NWPs at sites identified as compensatory mitigation sites under Section 404 of the Clean Water Act and/ or Section 10 of the Rivers and Harbors act of 1899. Because these mitigation sites are intended to replace the lost functions of aquatic resources permitted for impacts, it is unclear how the use of NWPs on mitigation sites is consistent with the "no-net-loss of wetlands" policy. The TCEQ recommends that activities proposed for authorization under NWPs not be allowed at mitigation sites and that an individual permit be required. If this is not practicable, please provide an explanation regarding the need for use of NWPs on mitigation sites.

The EPA's July 22, 2016 letter recommended the proposed regional condition be modified as follows: For mitigation (i.e. restoration) activities proposed for authorization under NWP at sites identified as compensatory mitigation sites (either permittee-responsible, mitigation bank and/or in-lieu fee) under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899, the applicant shall notify

the appropriate District Engineer in accordance with the NWP General Condition 32 (Pre-Construction Notification) prior to commencing the activity. For "non-mitigation activities" all NWPs are suspended at sites identified as compensatory mitigation sites.

The USFWS's July 21, 2016 letter supports the Corps' proposed regional condition but is concerned that the language is ambiguous. It is not clear to us that the issue being addressed is for alterations of previously authorized plans for compensatory mitigation sites (by the responsible party or the third party mitigation provider) or if it is meant to address proposed new impacts on such sites by additional parties. Regardless, the USFWS recommends that these actions either, (1) automatically undergo an individual permit review, as compensatory mitigation sites should be presumed to be protected by conservation easement or other restrictive covenant, or, (2) at a minimum, that the proposed action impacting or altering a compensatory mitigation site be coordinated with the resource agencies for review and comment and including Interagency Review Team (IRT) review for impacts proposed to existing in-lieu-fee projects or mitigation banks. Likewise, the USFWS recommends the word "identified" in this proposed RC be changed to "previously authorized" to clarify that the issue being addressed is an impact to an existing, previously authorized compensatory mitigation site.

Response: The purpose of this regional condition is to assure that non-reporting NWPs are not used in compensatory mitigation sites approved as a condition of a Department of the Army permit. Most compensatory mitigation plans are authorized as a condition of a permit, including both individual and general permits. Others are associated with a Mitigation Banks Instrument or In-Lieu-Fee Agreement in accordance with 33 CFR 332. The development of this regional condition assures that all activities proposed within an approved compensatory mitigation site are reviewed and verified by us prior to being conducted. We agree that activities proposed at a compensatory site that do not support the stated goals of the approved mitigation plan are likely to have more than minimal individual or cumulative adverse environmental effect and would require evaluation under an individual permit.

**2.2.3 Proposed Regional Condition 9 states:** Springs. For all discharges of dredged or fill material within 100 feet of the point of groundwater discharge of natural springs, pre-construction notice is required to the Corps in accordance with General Condition 32. A natural spring is defined as any location where ground water emanates from a point in the ground and has a defined surface water connection to another waters of the United States. For purposes of this regional condition, springs do not include seeps or other groundwater discharges which lack a defined surface water connection.

No comment was received on the regional condition.

**2.2.4 Proposed Regional Condition 10 states:** Suitable Fill. Use of broken concrete as fill or bank stabilization material is prohibited unless the applicant demonstrates that its use is the only practicable material (with respect to cost, existing technology, and logistics). Any applicant who wishes to use broken concrete as bank stabilization must provide notification to the District Engineer in accordance with General Condition 32

(Pre-Construction Notification) along with justification for such use. Use of broken concrete with rebar or used tires (loose or formed into bales) is prohibited in all waters of the United States.

No comment was received on the regional condition.

**2.2.5 Proposed Regional Condition 12 states:** For all discharges proposed for authorization under all NWPs, into the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention, the applicant shall notify the Fort Worth District Engineer in accordance with the NWP General Condition 32. The Corps will coordinate with the resource agencies as specified in NWP General Condition 32(d) (Pre-Construction Notification).

TPWD's February 10, 2017 letter stated that it appreciates the identification of Caddo Lake as a designated "wetland of international importance" and the requirement to coordinate with resource agencies.

**2.2.6 Proposed Regional Condition 14 states:** For all activities proposed for authorization under NWPs 12, 14 and/or NWP 33 that involve a temporary discharge of fill material into 1/2 acre or more of emergent wetland OR 1/10 acre of scrub-shrub/forested wetland, the applicant shall notify the appropriate District Engineer in accordance with the NWP General Condition 32 (Pre-Construction Notification) prior to commencing the activity.

Freese and Nichols' February 10, 2017 letter stated temporary fills should not require a pre-construction notice because temporary fills are already covered in the terms of the proposed NWPs 12, 14, and 33, and temporary fills should not result in a permanent loss as they must be removed in their entirety and pre-construction contours restored. This regional condition will confuse the regulated public as to what activities are allowed under the terms of these very commonly used NWPs.

GPA Midstream's February 12, 2017 letter requested that the Corps remove the pre-construction notice requirement under this regional condition for construction and maintenance of linear pipeline projects. Temporary discharge of fill material was addressed in the decision document for NWP 12, 14, and 33 and it was deemed that this activity would cause no more than minimal adverse effects on the aquatic environment. Furthermore, NWP 12 already includes pre-construction notice triggers for clearing in forested wetlands and other activities that would cover potential adverse impacts to the listed types of wetlands. GPA Midstream cautions the Corps about the potential burden on agency resources and project delays if pre-construction notices were to be required for every temporary discharge of fill material in 1/2 acre or more of emergent wetland or 1/10 acre of scrub-shrub/forested wetland under NWP 12, 14, and 33.

The Texas Pipeline Association February 13, 2017 letter stated under proposed Regional Condition 14, pre-construction notification would be unnecessary because current requirements already ensure that activities conducted under those Nationwide Permits minimize adverse impacts on aquatic environmental conditions.

Response: The Fort Worth District developed this regional condition to review the restoration plans for temporary impacts to emergent scrub-shrub/forested wetland projects that were not considered when the primary activity was authorized by the Corps of Engineers or the U.S. Coast Guard or when the primary activity does not require authorization. The pre-construction notification in special aquatic sites subject to systemic loss from even temporary impacts allows us on a case-by-case basis to determine when activities regulated under our authorities result in more than temporary impacts to these special aquatic sites that may require compensatory mitigation for temporal loss.

**2.2.7 Proposed Regional Condition 16 states:** No NWPs, except NWP 3, shall be used to authorize discharges into the habitat types or specific areas. The applicant shall notify the appropriate District Engineer in accordance with the NWP General Condition 32, Pre-Construction Notification (pre-construction notice) prior to commencing the activity under NWP 3.

- a. Mangrove Marshes. For the purpose of this regional condition, Mangrove marshes are those waters of the United States that are dominated by mangroves (*Avicennia* spp., *Laguncularia* spp, *Conocarpus* spp., and *Rhizophora* spp.).
- b. Coastal Dune Swales. For the purpose of this regional condition, coastal dune swales are wetlands and/or other waters of the United States located within the backshore and dune areas in the coastal zone of Texas. They are formed as depressions within and among multiple beach ridge barriers, dune complexes, or dune areas adjacent to beaches fronting tidal waters of the United States.
- c. Columbia Bottomlands. For the purpose of this regional condition, Columbia bottomlands are defined as waters of the United States that are dominated by bottomland hardwoods in the Lower Brazos and San Bernard River basins.

The July 22, 2016 TPWD letter recommended Regional Condition 8 should include the four species of mangroves in North America: black mangrove, red mangrove, white mangrove, and button mangrove as part of the marsh mangrove definition.

TPWD's February 10, 2017 letter stated they appreciate the clarification and inclusion of mangrove marshes, coastal dune swales, and Columbia Bottomland habitats.

Response: Although we do not consider all four of these species to be common along the Texas coast, The Galveston District updated the regional condition to identify the additional species requested by TPWD.

Perennial Environmental Services' February 10, 2017 and GPA Midstream's February 12, 2017 letters recommend that linear transportation projects continue to be authorized under NWPs 12 and 14 when crossing Columbia Bottomlands, provided construction activities take place in accordance with NWP general conditions. According to The Nature Conservancy, the Columbia Bottomlands encompass approximately 700,000 acres within the Galveston District. Due to its size and location, it will be virtually impossible for many linear transportation projects in southeast Texas to reach coastal refineries or other infrastructure without crossing designated Columbia Bottomlands. If linear utility projects are no longer authorized under the NWP Program within Columbia Bottomlands, one of two scenarios will occur. A given project will attempt to commit to avoiding all forested wetlands via multiple horizontal directional drills (HDD); or an individual permit will be pursued. If the HDD option is pursued, large additional temporary workspace (ATWS) areas will be situated within uplands (usually forested) adjacent to every forested wetland crossing to provide sufficient workspace area for drill pads, construction equipment, etc. This in turn will result in an increase of forest conversion and habitat fragmentation, as the Columbia Bottomlands contain numerous wetland and upland complexes throughout its designation.

Freese and Nichols' February 10, 2017 letter stated we should provide a definitive geographic boundary or a source showing definitive limits regarding the area covered by the Columbia Bottomlands.

The Texas Pipeline Association February 13, 2017 letter stated they are opposed to the elimination of coverage of certain Nationwide Permits in the Columbia Bottomlands. As long as permitted activities are in compliance with Nationwide Permit general conditions, we see no need to eliminate the ability of companies to utilize Nationwide Permits in these areas. The Columbia Bottomlands is a large area located along and near the Gulf Coast near Houston. Because the area is geographically proximate to a significant amount of oil and gas activities and infrastructure, eliminating the ability to use Nationwide Permits 12 and 14 in this area will cause a substantial disruption, delay, and increased expense for construction activities on pipelines that traverse the area, as companies might be forced to undergo the lengthy process of applying for and obtaining an individual permit.

Response: The regional condition is only applicable to waters of the United States (U.S.) identified in the Columbia Bottomland maps developed from the 1997 Memorandum of Agreement between the EPA, USFWS, NRCS, and TPWD for bottomland hardwoods in Brazoria County. These maps will be provided to the public and do not constitute the full acreage described by the Nature Conservancy. Forest conversion and habitat fragmentation frequently occur in uplands located in the Columbia Bottomlands and are not subject to Section 404 of the Clean Water Act and do not require a permit; this regional condition is unlikely to change that. The EPA and USFWS frequently designate Columbia Bottomland wetlands as Aquatic Resources of

National Importance (ARNI) in accordance with Section 404(q) Memorandums of Agreement. The loss or conversion of ARNIs results in more than minimal individual or cumulative adverse environmental effect and will be evaluated under an individual permit.

**2.2.7.1 Reason for Exclusion of Mangrove Marshes:** Of the four species of mangroves common to the Gulf of Mexico, the black and red mangrove are species able to sufficiently tolerate Texas winters. Even so, their extent within the Galveston District is limited. Mangrove communities are most prevalent from central Texas, southward. They reach their greatest development on warm bay shores that are protected from exposure to high waves or strong currents. Black and red mangroves have one of the highest salt tolerances of all mangrove species; however, they lack the stereotypical aerial prop roots that facilitate exploitation of permanently subtidal, nearshore waters. Hence, their seaward extent at any one location is limited. Mangroves occupy the same ecological niche and perform the same ecological functions within central and southerly located Texas estuaries, as do the salt marshes that are more commonly located within the less saline estuaries of the upper Texas coast. Within each stand of mangroves, sediment accretion takes place as root systems effectively stabilize the mud. Leaf litter is broken down by primary consumers such as small crustaceans and decomposed by bacteria and fungi; thereby resulting in detritus that adds bulk and substance to the soil. Spring tides regularly inundate these areas, depositing fine sediments, strands of algae and other debris, which together with progressively decomposing leaf litter, turn the water into rich organic soup. Molluscs, and larger crustaceans (mainly crabs and shrimp species), feed on this organic material. Juvenile fish, utilizing the mangroves as protective nursery habitat, ingest these organisms and, in turn, become food for many species of wading shorebirds (e.g. herons, egrets, bitterns). In spite of their ecological importance, mangrove communities are still one to the least studied habitats of the western Gulf of Mexico. Efforts at reproducing mangrove habitats have been largely unsuccessful. The Galveston District therefore believes that it is necessary to examine with greater scrutiny, via the individual permit process, both the individual and cumulative impacts to black mangrove habitat that may result from discharges potentially authorized by this NWP.

**2.2.7.2 Reason for Exclusion of Coastal Dune Swales:** Few waters of the U.S. of this type exist along the Texas coast. While relatively small, freshwater wetland coastal dune swales are extremely important foraging, nesting and cover sites for several species of migratory and resident aquatic birds. These wetlands often provide a rare source of fresh water for avian species such as mottled duck (*Anas fulvigula*), and the white-faced ibis (*Plegadis chihli*). These swales are also the only available habitat in their locality for many amphibians. For example, all eight species of frogs and toads that are known to exist on barrier islands in Texas, require habitat such as this for their existence. Seven species of reptiles such as the gulf salt marsh snake (*Nerodia clarki*), also found on barrier islands, utilize freshwater wetland swales. Of these reptiles, the red-eared turtle (*Chrysemys scripta*) and the western ribbon snake (*Thamnophis proximus*) are totally restricted to freshwater habitats. It is likely that similar relationships between birds, reptiles, and amphibians exist on other barrier islands of

the Texas coast which contain freshwater wetland dune swales. Coastal dune swales also reduce erosion by stabilizing and anchoring soil. They act as reservoirs for runoff during periods of high rainfall. From 1981-1989, the acreage of wetland swales on Galveston Island decreased from 32 to 25 acres, and approximately 12 acres remained in 1994. The Galveston District is concerned about the cumulative losses that have occurred thus far to this type of wetland, due to both regulated and non-regulated activities. The District is therefore excluding the use of this NWP for discharges in these aquatic resource areas. Such activities will instead have to be reviewed via the individual permit process. They will be subject to a review of alternatives and other public interest factors.

**2.2.7.3 Reason for Exclusion of Columbia Bottomlands:** The Columbia Bottomlands are characterized by the mixed hardwood forests stretching across the floodplains of three major rivers (Colorado, San Bernard, and Brazos) and their associated bayous. Many species of trees may be found in these areas, including green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), pignut (*Carya glabra*), hickory (*Carya* spp.), cherry laurel (*Prunus laurocerasus*), American beech (*Fagus grandifolia*), magnolia (*Magnolia grandiflora*) and pecan (*Carya illinoensis*) trees. (Rosen et al. 2008) The area is an important stopover habitat for migrating neotropical birds like hummingbirds, warblers, thrushes and orioles. During the height of migration, it is estimated that 239 million birds representing 237 species pass through the Columbia Bottomlands each spring. Once covering over a thousand square miles, the bottomlands have been reduced to 250 square miles. The forests contain the last remaining examples of the Brazoria palm and the state's oldest and largest live oak trees. Decades of experience with permitting a limited number of actions in these habitat areas has demonstrated that impacts are long-lasting and new habitat is difficult to recreate using conventional mitigation techniques. The Corps has therefore determined that pre-construction notifications will be required for all discharges proposed under this NWP within these aquatic resource areas. Case-by-case reviews of activities that could potentially impact these areas will provide an opportunity to add project-specific conditions to the authorizations, if applicable, in order to reduce individual and cumulative impacts to the resource that could result from NWP permitting activity. This type of review also provides an opportunity for the Corps to take discretionary authority, if appropriate, and require that the project be evaluated via the individual permit process. It would then be subject to a review of alternatives and other public interest factors. The areas excluded are limited to waters of the U.S., including wetlands, located in areas of concern identified in the Columbia Bottomland maps developed from the 1997 Memorandum of Agreement between the EPA, USFWS, NRCS, and TPWD for bottomland hardwoods in Brazoria County. Maps of these areas will be provided to the public.

**2.2.8 Proposed Regional Condition 23 states:** For all activities proposed for authorization under NWP 33 the applicant shall notify the District Engineer in accordance with the NWP General Condition 32, pre-construction notice. The pre-construction notice must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions. Activities

causing the temporary loss of more than 0.5 acres of tidal waters and/or 200 linear feet of stream will be coordinated with the agencies in accordance with NWP General Condition 32(d).

TxDOT's February 7, 2017 letter recommends that the agency coordination requirement be omitted from General Condition 23. TxDOT references General Condition 32's requirements for agency coordination with agencies when the half-acre and/or 300-linear-foot loss is permanent and suggests that temporary impacts should not be equivalent.

Response: The Galveston District developed this regional condition to review the restoration plans with state and federal agencies for temporary impacts to large tidal projects and stream impacts that were not considered when the primary activity was authorized by the Corps of Engineers or the U.S. Coast Guard or the primary activity does not require authorization. The preconstruction notification requirement in aquatic systems subject to systemic loss from even temporary impacts allows us on a case-by-case basis to determine when activities regulated under our authorities result in more than temporary impacts to these aquatic resources. Temporary construction access for utility line construction and linear transportation construction should be evaluated under NWP 12 Utility Line Activities and NWP 14 Linear Transportation Projects respectively.

**2.2.9 Proposed Regional Condition 24 states:** No NWPs, except NWPs 3 and 16, shall be used to authorize discharges, structures, and/or fill within the standard setback and high hazard zones of the Sabine-Neches Waterway as defined in the Standard Operating Procedure - Permit Setbacks along the Sabine-Neches Waterway. The applicant shall notify the Galveston District Engineer in accordance with NWP General Condition 32 (Pre-Construction Notification) for all discharge, structures and/or work in medium hazard zones and all NWP 3 applications within the standard setback and high hazard zones of the Sabine-Neches Waterway.

No comment was received on the regional condition.

**2.2.10 Proposed Regional Condition 25 states:** No NWPs shall be used to authorize discharges, structures, and/or fill within the standard setback exemptions of the Gulf Intracoastal Waterway as defined in the Standard Operating Procedure- Department of the Army Permit Evaluation Setbacks along the Gulf Intracoastal Waterway. The applicant shall notify the Galveston District Engineer in accordance with NWP General Condition 32 (Pre-Construction Notification) for all discharge, structures and/or work within the standard setback, shoreward of the standard setback, and/or standard setback exemption zones.

No comment was received on the regional condition

**2.2.11 Proposed Regional Condition 26 states:** The use of NWPs in the San Jacinto River Waste Pits Area of Concern are revoked.

The EPA's July 22, 2016 letter recommended the regional condition be modified to suspend the use of NWP's in the San Jacinto Waste Pits Area of Concern.

The July 22, 2016 TPWD letter recommended we modify the regional condition so that all proposed work in the San Jacinto Waste Pits Area of Concern be authorized through the Corps Public Notice (individual permit) process, not under a NWP, and no waivers should be granted.

GPA Midstream's February 12, 2017 letter requested that Corps reconsider allowing the use of NWP's within the San Jacinto River Waste Pits Area of Concern. Alternately, the Corps could consider limiting the retraction of NWP's in this area to activities within Section 10 waters only. The referenced area of concern encompasses upland areas and GPA Midstream believes that NWP's should be authorized above the high tide line and/or for activities that do not disturb the mud line below the water.

The Texas Pipeline Association February 13, 2017 letter stated they are opposed to the elimination of coverage of NWP's within the San Jacinto River Waste Pits Area of Concern. As long as permitted activities are in compliance with NWP general conditions, we see no need to eliminate the ability of companies to utilize Nationwide Permits in these areas. In addition, with respect to the San Jacinto River Waste Pits Area of Concern, we support GPA Midstream's alternative position to consider limiting the retraction of the Nationwide Permits to activities within Section 10 waters only. The proposed curtailment or elimination of Nationwide Permit coverage in these areas appears to be overbroad, unreasonable and would result in a situation where any environmental benefit would be greatly outweighed by the burden that the proposal would place on the natural gas industry.

W&M Environmental Group's February 10, 2017 comment stated this regional condition unfairly targets applicants located within the San Jacinto Area of Concern. They know there are impacts in the sediment from the San Jacinto Waste Pits and are already required to handle them appropriately. This condition is especially onerous given that applicants within the AOC have been waiting for periods of time beyond performance standards for documentation of non-NWP permits.

Response: The 2012 NWP's were modified after issuance to require that all work in the San Jacinto River Waste Pits Area of Concern, authorized under a NWP, required a waiver from the Galveston District Engineer. This regional condition allowed for a permit process requiring prior authorization from the TCEQ to occur prior to the Corps review. Based on EPA's continued concerns and objections to permits in their Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) site, the Galveston District developed Regional Condition 29 revoking the use of NWP's in the San Jacinto Waste Pits Area of Concern. Department of the Army permits are only required for losses of waters of the U.S., including wetlands. This addition of this regional condition does not expand our regulatory authority into the uplands located in the San Jacinto Waste Pits Area of Concern.

**2.2.11.1 Reason for Exclusion of San Jacinto Waste Pits.** On March 19, 2008, the EPA placed the San Jacinto River Waste Pits Superfund Site (Site) on the National Priorities List marking the beginning of the EPA's cleanup of the Site through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. We continue to be concerned that permitted activities that impact within the San Jacinto Area of Concern may expose permittees to CERCLA liability. To minimize permittee exposure to CERCLA liability and to continue to effectively evaluate proposed and permitted activities, we have used our discretion to revoke NWP's and require activities within the San Jacinto Area of Concern be evaluated under an individual permit. A map of the San Jacinto Waste Pits Area of Concern will be provided to the public.

**2.2.12 Proposed Regional Condition 30 states:** Upland Disposal: Material disposed of in uplands shall be placed in a location and manner that prevents discharge of the material and/or return water into waters or wetlands unless otherwise authorized by the Tulsa District Engineer.

No comment was received on the regional condition.

### **2.3 Recommendations for Additional Regional Conditions**

**2.3.1 NWP's 3(b), 7, 8, 11, 12, 14, 15, 16, 17, 23, 27, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 48, 49, and 50.**

The EPA's July 22, 2016 letter recommended we require pre-construction notification for the following NWP's; 3(b), 7, 8, 11, 12, 14, 15, 16, 17, 23, 27, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 48, 49, and 50.

Response: NWP's 3(b), 7, 8, 17, 23, 29, 31, 34, 38, 39, 40, 42, 44, 46, 49 and 50 require pre-construction notice for all activities. The pre-construction notice request has been specifically discussed in other responses for NWP's 15, 27, and 45. Regional Conditions 4, 8, 13, 17, and 29 identify regional thresholds for notification, compensatory mitigation, and limit stream loss. Additional requirements for pre-construction notification on NWP's that only result in temporary impacts is not practical and would not meet the streamlined authorization process goals for activities that result in no more than minimal individual and cumulative adverse environmental effects. We believe that the existing NWP requirements, the NWP general conditions, and regional conditions ensure that no more than minimal adverse environmental effects occur in the region as a result of these NWP's.

## **3.0 Alternatives**

### **3.1 No Regional Conditions**

If no additional regional conditions would be issued for this NWP, all work authorized by this NWP would be subject to its current terms and conditions, as well as the NWP general conditions. However, our experience with previously permitted activities has shown that regional aquatic resources need to be protected to a greater degree to prevent more than minimal individual and cumulative adverse environmental effects from occurring in the region. Proposed impacts involving these resources need to be evaluated through a case-by-case analysis. By not implementing regional conditions, this NWP has the potential to result in more than minimal impacts to waters of the U.S. which would result in suspension or revocation of the NWP in the region. As such, this alternative would not achieve one of the goals of the Corps NWP Program, which is to reduce the regulatory burden on applicants for activities that result in no more than minimal individual and cumulative adverse environmental effects.

### **3.2 Alternative Regional NWP Limits or Pre-Construction Notification Thresholds**

Through the evaluation of the 2017 NWPs, the Corps has considered lowering or establishing acreage limits and/or linear foot limits or lowering pre-construction notification thresholds is necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal in light of other regional conditions, NWP general conditions, and current NWP pre-construction notification thresholds. When appropriate, the Corps finds lowering the pre-construction notification threshold rather than lowering the acreage and/or linear foot limits preferable. This allows the Corps to conduct an activity-specific review and determine on a case-by-case basis if the proposed activity will have more than minimal adverse effect on the environment. Regional conditions requiring pre-construction notification requirements have been included for several NWPs to allow for a case-by-case reviews of activities that could potentially impact these areas. This review will provide an opportunity for the Corps to add project-specific conditions to the authorizations, if applicable, in order to reduce individual and cumulative impacts to the resource that could result from NWP permitting activity. This type of review also provides an opportunity for the Corps to exercise discretionary authority, and require an individual permit if necessary.

The Corps evaluated the need to include acreage and/or linear foot limits to address cumulative regional loss of rare and/or difficult-to-replace aquatic resources. In these cases, the Corps must decide to impose a cap on loss or to require compensatory mitigation to offset the loss at a threshold lower than the NWP general conditions. When appropriate, the Corps finds requiring compensatory mitigation at thresholds lower than General Condition 23 is preferable to imposing caps. This allows the Corps to make activity-specific determinations, after considering compensatory mitigation, to assure activities will result in no more than minimal individual and cumulative adverse effects on the environment. The Corps has identified several rare and/or difficult-to-replace aquatic resources in Texas that require compensatory mitigation at lower

thresholds and have identified caps on loss requiring an individual permit review process.

In addition to regional limits and pre-construction notification thresholds, the Corps has evaluated the need to exclude some rare and/or difficult-to-replace aquatic resources from the NWP program. The Corps has excluded several rare and/or difficult-to-replace wetland aquatic resources from the NWP program as a result of the cumulative losses of these regional resources. Activities proposed in these wetlands will require an individual permit subject to a review of alternatives and other public interest factors.

The regional conditions relevant to this NWP include: 2, 8, 9, 10, 11, 13, 15, 22, 23, 24, 25, and 29.

### **3.3 Other Regional Conditions**

**See Section 2.3 Recommendations for Additional Regional Conditions**

## **4.0 Section 7 of the Endangered Species Act (ESA)**

### **4.1 General Considerations**

In addition to being subject to the requirements of general condition 18 (Endangered Species), under the current Corps regulations (33 CFR 325.2(b)(5)), the District Engineer must review all permit applications for potential impact on threatened and endangered species or critical habitat. For the NWP program, this review occurs when the District Engineer evaluates the pre-construction notification as a requirement for all NWP activities that might affect those listed species or their designated critical habitat, or that occur in their designated critical habitat. General condition 18 of the NWPs provides that no activity is authorized under any NWP that may affect a listed species or critical habitat unless ESA Section 7 consultation addressing the effects of the proposed activity has been completed. General condition 18 also requires prospective non-federal permittees to notify the Corps if any federally listed threatened or endangered species, or designated critical habitat might be affected, or is in the vicinity of the project, or if the project is located in designated critical habitat. In such cases, General Condition 18 provides that the prospective permittee shall not begin work until notified by the Corps that the requirements of the ESA have been satisfied and that the activity is authorized. If the Corps determines that the activity may affect any federally-listed species or critical habitat, the Corps must initiate Section 7 consultation with the USFWS or the NMFS under the ESA. The Corps may authorize the activity under a NWP by adding, if appropriate, activity-specific conditions; or assert discretionary authority and require an individual permit (see 33 CFR 330.4 and 330.5) prior to, or concurrent with, Section 7 consultation. The ESA requirements are essentially the same for NWPs as for any other Corps permit type, including individual permits, in that

no activity is authorized to affect a federally-listed threatened or endangered species, or its critical habitat, until the appropriate consultation with the USFWS or NMFS has occurred and the activity is expressly authorized.

Based on the evaluation of all available information, the District Engineer initiates consultation with the FWS or the NMFS, as appropriate, if he or she determines that the regulated activity may affect any threatened and endangered species or critical habitat. Consultation may occur during the NWP authorization process or the District Engineer may exercise discretionary authority to require an individual permit review for the proposed activity and initiate consultation through the individual permit process, if appropriate. If ESA consultation is conducted during the NWP authorization process without the District Engineer exercising discretionary authority, then the applicant will be notified that he or she cannot proceed with the proposed activity until ESA consultation is complete. If the District Engineer determines that the activity will have no effect on any threatened and endangered species or critical habitat, then the District Engineer will notify the applicant that he or she may proceed under the NWP authorization.

#### **4.2 Local Operating Procedures for Section 7 of the Endangered Species Act**

The Corps has an ongoing commitment to consult, informally and formally, with the USFWS and NMFS, as appropriate, case-by-case when the Corps receives pre-construction notifications, and other requests for verification, for authorization under the NWPs.

The Districts coordinate regularly with local USFWS and NMFS officials responsible for Texas and continue to update established informal local operating procedures that assist the Corps Districts in determining whether the proposed activity may affect a federally-listed threatened or endangered species or its critical habitat. The Corps will review available information and work with permit applicants to gather other necessary information, to determine whether a proposed activity may affect listed species or critical habitat. If the activity is located within a habitat area of concern, the Corps would contact the USFWS or the NMFS, as appropriate. These procedures help to ensure that proposed Corps permit actions will not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of a listed species.

#### **5.0 Section 106 of the National Historic Preservation Act**

Current regulatory procedures are outlined in the 25 April 2005 Appendix C interim guidance, and 31 January 2007 Clarification of the Revised Interim Guidance, provided by the U.S. Army Corps of Engineers, Directorate of Civil Works. The Corps is in the process of revising its regulatory program procedures, Appendix C of 33 CFR 325 "Procedures for the Protection of Historic Properties", for compliance with Section 106 of the NHPA and its implementing regulations codified by the Advisory Council on

Historic Preservation (ACHP) in 36 CFR Part 800. The revisions to the regulatory program procedures have been necessitated by the 2004 revisions to 36 CFR Part 800.

## **5.1 General Considerations**

Under the current Corps regulations (33 CFR 325.2(b)(3), the Corps must review all permit applications for potential impact on properties listed or eligible for listing in the National Register of Historic Places (NRHP) and comply with the National Historic Preservation Act of 1966 (NHPA) and implementing regulations. The Corps follows the interim guidance procedures referenced in Section 5.0 above to that end. NWP general condition 20 provides that no activity is authorized under any NWP that may affect properties listed, or eligible for listing, in the NRHP, until the requirements of Section 106 of the NHPA have been satisfied. General condition 20 also requires prospective non-federal permittees to notify the Corps if any authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the NRHP, including previously unidentified properties. The Corps, working with the prospective permittee, must make a reasonable and good faith effort to carry out appropriate identification efforts. Where historic properties have been identified that have the potential to be affected by the proposed activity, the prospective permittee may not begin work until notified by the Corps that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

NWP activities are evaluated by the Corps Staff Archeologist to determine if a proposed permit action has the potential to affect historic properties. The initial evaluation process includes the review of existing cultural resource site records and reports and an evaluation of the permit area to determine the potential for the presence of cultural resources that are, or have the potential to be, eligible for listing in the NRHP. If the Corps determines that the action has no potential to affect cultural resources, the Corps will proceed to verify the NWP authorization without further consultation with the State Historic Preservation Officer (SHPO) and the Texas Historic Preservation Officer (THPO). If the Corps determines that there will be no effect or no adverse effect to any NRHP-eligible historic property, the Corps will provide the SHPO/THPO a 30-day review of that determination prior to verifying authorization. If the Corps determines that the action may affect an NRHP-eligible historic property, the Corps will coordinate the PCNs with the SHPO/THPO. Following the initial evaluation, the Corps may either: (1) consult with the SHPO/THPO during the NWP review process, or (2) require an individual permit for the proposed work and initiate consultation through the individual permit process.

## **5.2 Local Operating Procedures for Section 106 of the National Historic Preservation Act**

In addition to the procedures outlined in 5.1, permit areas that contain previously recorded cultural resources and/or have the potential for the presence of significant cultural resources will require a cultural resource investigation. Investigations may

include, but not be limited to, cultural resources inventories (terrestrial, aquatic, and/or marine, reconnaissance and/or intensive), site delineation and NRHP testing, data recovery, avoidance plans and historic structures analysis. The level of effort involved in any cultural resource investigation is coordinated with the Corps Staff Archeologist and the SHPO/THPO by the applicant and their contracted professional archeologist. The prospective permittee compiles the results of initial work in a report and forwards the report to the SHPO/THPO for review and comment and the Corps for approval. After site identification, the Corps will select sites potentially eligible for the NRHP in consultation with the prospective permittee and the SHPO/THPO for testing. The permittee tests these sites according to a research design developed prior to this phase of field work. The permittee forwards the research design to the SHPO/THPO for review and comment and to the Corps for approval prior to implementation of testing. After testing is completed, the prospective permittee forwards a testing report to the SHPO/THPO for review and comment and the Corps for approval. The prospective permittee develops a plan for data recovery if NRHP-eligible properties are identified during the testing phase. The permittee forwards this plan to the SHPO/THPO for review and comment and the Corps for approval. The permittee compiles and forwards a completed report of the data recovery phase of work to the SHPO/THPO for review and comment and the Corps for approval. All historic properties/cultural resources work is undertaken by qualified personnel. The work is accomplished in conformance with Council of Texas Archeologists Guidelines for Field Investigations and Reporting, and the Department of the Interior's "Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines" (FR, Vol. 48, No. 190). All sites are assigned trinomial numbers and are assessed according to the criteria for the NRHP contained in 36 CFR 60.4. As noted above, prospective permittees are not authorized to initiate any construction for any undertaking that would affect an NRHP-eligible property until the significance of the property and the effects of the undertaking on the property are determined and any necessary treatment is complete. Prospective permittees may not begin work in the permit area until the Corps has verified that the requirements of 36 CFR Part 800 have been met. The Corps also considers that if a previously unknown cultural resource site is encountered in the permit area during work authorized by an NWP, the permittee must contact the Corps and avoid further impact to the site until assessment by state and federal cultural resource specialists is complete and the Corps has verified that the requirements of 36 CFR Part 800 have been met and the Corps has notified the permittee that work may resume in the affected area.

## **6.0 Government-to-Government Consultation with Tribes**

### **6.1 Consultation Summary**

On March 10, 2016, the Deputy Commanding General for Civil and Emergency Operations issued guidance for conducting government-to-government consultation with tribes on the proposed 2017 NWPs. The Galveston District, as lead District for the State of Texas sent letters to the Alabama-Coushatta, Apache, Caddo, Cherokee, Choctaw, Comanche, Coushatta of Louisiana, Fort Sill Apache, Kickapoo Traditional,

Kiowa, Lipan Apache, Mescalero Apache, Osage, Tonkawa, Wichita tribes to initiate consultation on the 2017 NWP, including regional conditions, the potential for suspension or revocation of the NWP in specific geographic areas, and the development of coordination or consultation procedures for NWP PCNs.

The Southwestern Division coordinated with all interested recognized tribes by letter, and offered to hold coordination meetings. The tribes did not express an interest in holding meetings, or communicate any concerns with the revised NWPs.

## **6.2 Local Operating Procedures for Protecting Tribal Rights, Tribal Trust Resources, and Tribal Lands**

In the Galveston District, one tribal reservation is located within its boundaries. The Alabama-Coushatta Tribe of Texas will be consulted whenever an activity is located adjacent to or on tribal property

In the Fort Worth District, at the request of a tribe, or based on ethnographic documentation, the Corps may choose to coordinate with Recognized Tribes known to have been resident in the area. The Corps will request that the Recognized Tribe provide comments on the proposed NWP action.

In the Tulsa District, there are no regional conditions that address any discovery of human remains or Native American culture objects falling under the Native American Graves Protection and Repatriation Act protected resources or anthropological evidence. However, general condition 21 for the *Discovery of Previously Unknown Remains and Artifacts* and general condition 20 for *Historic properties* adequately address the protection of Tribal Resources. Additionally, the Tulsa District procedures for PCN NWPs deal with the Native American Graves Protection and Repatriation Act, as appropriate.

The Tulsa District standard processing procedure for pre-construction notification ensures the NWP proposals are reviewed by the Tulsa District staff archeologist, prior to issuance. Upon determining that a NWP proposal would impact protected resources or anthropological evidence, the project is further coordinated until cleared by the SHPO/THPO. This ensures compliance with the Appendix C, the Interim Guidance, and NHPA Section 106 Guidance.

In the Albuquerque District, one tribe is located within its Texas boundaries. The Ysleta del Sur Pueblo of El Paso Texas will be consulted whenever an activity is located adjacent to or on tribal property.

If the NWP action may affect Tribal lands, the Corps will follow tribal consultation procedures as outlined in the 2004 revised ACHP, 36 CFR Part 800 procedures; Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" dated 6 November 2000; and through Corps Policy Guidance Letter No.

57, "Indian Sovereignty and Government-to-Government Relations with Indian Tribes", dated 18 February 1998.

## **7.0 Essential Fish Habitat**

The Galveston District consulted with the NMFS under the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Management and Conservation Act. No response was received.

## **8.0 Regional Supplement to the Analyses in the National Decision Document**

### **8.1 Public Interest Review Factors (33 CFR 320.4(a)(1))**

In addition to the discussion in the national decision document for this NWP, the Albuquerque, Galveston, Fort Worth and Tulsa Districts have considered the local impacts expected to result from the activities authorized by this NWP, including the reasonably foreseeable cumulative effects of those activities.

- (a) Conservation: Same as discussed in the national decision document.
- (b) Economics: Same as discussed in the national decision document.
- (c) Aesthetics: Same as discussed in the national decision document.
- (d) General environmental concerns: Same as discussed in the national decision document.
- (e) Wetlands: Same as discussed in the national decision document.
- (f) Historic properties: Same as discussed in the national decision document.
- (g) Fish and wildlife values: Same as discussed in the national decision document.
- (h) Flood hazards: Same as discussed in the national decision document.
- (i) Floodplain values: Same as discussed in the national decision document.
- (j) Land use: Same as discussed in the national decision document.
- (k) Navigation: Same as discussed in the national decision document.
- (l) Shore erosion and accretion: Same as discussed in the national decision document.
- (m) Recreation: Same as discussed in the national decision document.

- (n) Water supply and conservation: Same as discussed in the national decision document.
- (o) Water quality: Same as discussed in the national decision document.
- (p) Energy needs: Same as discussed in the national decision document.
- (q) Safety: Same as discussed in the national decision document.
- (r) Food and fiber production: Same as discussed in the national decision document.
- (s) Mineral needs: Same as discussed in the national decision document.
- (t) Considerations of property ownership: Same as discussed in the national decision document.

## **8.2 Section 404(b)(1) Guidelines Impact Analysis (Subparts C-F)**

- (a) Substrate: Same as discussed in the national decision document.
- (b) Suspended particulates/turbidity: Same as discussed in the national decision document.
- (c) Water: Same as discussed in the national decision document.
- (d) Current patterns and water circulation: Same as discussed in the national decision document.
- (e) Normal water level fluctuations: Same as discussed in the national decision document.
- (f) Salinity gradients: Same as discussed in the national decision document.
- (g) Threatened and endangered species: Same as discussed in the national decision document.
- (h) Fish, crustaceans, molluscs, and other aquatic organisms in the food web: Same as discussed in the national decision document.
- (i) Other wildlife: Same as discussed in the national decision document.
- (j) Special aquatic sites: The potential impacts to specific special aquatic sites are discussed below:
  - (1) Sanctuaries and refuges: Same as discussed in the national decision document.

- (2) Wetlands: Same as discussed in the national decision document.
- (3) Mud flats: Same as discussed in the national decision document.
- (4) Vegetated shallows: Same as discussed in the national decision document.
- (5) Coral reefs: Same as discussed in the national decision document.
- (6) Riffle and pool complexes: Same as discussed in the national decision document.

(k) Municipal and private water supplies: Same as discussed in the national decision document.

(l) Recreational and commercial fisheries: Same as discussed in the national decision document.

(m) Water-related recreation: Same as discussed in the national decision document.

(n) Aesthetics: Same as discussed in the national decision document.

(o) Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar areas: Same as discussed in the national decision document.

### **8.3 Regional Cumulative Effects Analysis**

This section discusses the anticipated cumulative effects of the use of NWP 33 in Texas during the period this NWP is in effect.

The cumulative effects of this NWP are dependent upon the number of times the NWP is used in the state and the quantity and quality of waters of the U.S. impacted as a result of the activities authorized by this NWP (see 40 CFR 230.7(b)).

Based on reported use of this NWP during the period of March 19, 2012, to June 10, 2016, the Albuquerque, Galveston, Fort Worth and Tulsa Districts estimate that this NWP will be used approximately 19 times per year in Texas, resulting in impacts to approximately 0.05 acres of waters of the U.S. The reported use includes pre-construction notifications submitted to the Albuquerque, Galveston, Fort Worth and Tulsa Districts, as required by the terms and conditions of the NWP as well as regional conditions imposed by division engineers. The reported use also includes voluntary notifications submitted to the Albuquerque, Galveston, Fort Worth and Tulsa Districts where the applicants request written verification in cases when pre-construction notification is not required. The reported use does not include activities that do not require pre-construction notification and were not voluntarily reported to the Albuquerque, Galveston, Fort Worth and Tulsa Districts. The Albuquerque, Galveston, Fort Worth and Tulsa Districts estimates that 10 NWP activities will occur each year that

do not require pre-construction notification, and that these activities will impact 0.05 acres of jurisdictional waters each year.

Based on reported use of this NWP during that time period, the Albuquerque, Galveston, Fort Worth and Tulsa Districts estimated that 2.1 percent of the NWP 33 verifications will require compensatory mitigation to offset the authorized impacts to waters of the U.S. and ensure that the authorized activities result in only minimal adverse environmental effects. The verified activities that do not require compensatory mitigation will have been determined by Albuquerque, Galveston, Fort Worth and Tulsa district engineers to result in no more than minimal individual and cumulative adverse environmental effects without compensatory mitigation. During 2017-2022, the Albuquerque, Galveston, Fort Worth and Tulsa Districts expect little change to the percentage of NWP 33 verifications requiring compensatory mitigation, because there have been no substantial changes in the mitigation general condition or the NWP regulations for determining when compensatory mitigation is to be required for NWP activities. The Albuquerque, Galveston, Fort Worth and Tulsa Districts estimates that approximately 1 acres of compensatory mitigation and/or 1 compensatory mitigation credit will be required each year to offset authorized impacts. The demand for these types of activities could increase or decrease over the five-year duration of this NWP.

Based on these annual estimates, the Albuquerque, Galveston, Fort Worth and Tulsa Districts estimated that approximately 150 activities could be authorized over a five year period until this NWP expires, resulting in impacts to approximately 7.5 acres of waters of the U.S. Approximately 4 acres of compensatory mitigation would be required to offset those impacts. Compensatory mitigation is the restoration (re-establishment or rehabilitation), establishment, enhancement, and/or preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. [33 CFR 332.2]

In addition to the cumulative losses associated with specific NWPs, we are also concerned about loss associated with the entire NWP program in specific types of waters of the U.S. We have included exclusions to certain types of rare wetlands including mangrove swamps as well as those wetlands found in dune swale complexes and the Columbia bottomlands. In addition, we have required pre-construction notification for rare wetlands resources such as pitcher plant bogs and cypress tupelo swamps as well the region of Caddo Lake designated as a "Wetland of International Importance" under the Ramsar Convention. In addition to wetlands, the cumulative effects of NWPs on the navigable waters such as the Canadian River, Prairie Dog Town Fork of the Red River, Red River, Sabine-Neches Waterway and Gulf Intracoastal Waterway also compelled us to require pre-construction notices and/or exclusions to the NWPs in these waters. Finally, we have included compensatory mitigation requirements when necessary to reduce the contribution of those activities to the

cumulative effects on the Nation's wetlands, streams, and other aquatic resources, by providing ecological functions to partially or fully replace some or all of the aquatic resource functions lost as a result of those activities.

### **9.0 Final Corps Regional Conditions for NWP 33**

Based on comments and concerns submitted by state and federal agencies as well as the regulated public during both the June, 7 2016 and January 12, 2017 public notices, the Corps has revised its regional conditions for the State of Texas. The following is a list of final Corps regional conditions for NWP 33:

### **10.0 Water Quality Certification and Coastal Zone Management Act consistency determinations**

TCEQ, by letter dated March 6, 2017, conditionally certified NWP 12 stating that Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required. NWP 12 is not authorized for use in coastal dune swales, mangrove marshes, and Columbia bottomlands in Texas. (Encl. 1)

The TCEQ has reviewed the Notice of Reissuance of Nationwide Permits for consistency with the Texas Coastal Management Program (CMP) goals and policies in accordance with the CMP regulations (Title 31, Texas Administrative Code (TAC), Chapter (§)505.30) and has determined that the action is consistent with the applicable CMP goals and policies.

This certification was reviewed for consistency with the CMP's development in critical areas policy (31 TAC §501.23) and dredging and dredged material disposal and placement policy (31 TAC §501.25). This certification complies with the CMP goals (31 TAC §501.12(1, 2, 3, 5)) applicable to these policies.

The EPA, by letter dated March 2, 2017, stated they hereby certify the use of the 2017 NWPs for use on the Ysleta del Sur Pueblo tribal lands. For the remaining affected tribes within the State of Texas EPA did not certify the use of the 2017 NWPs, rather, in accordance with Corps regulations at 33 CFR 330.4(c), anyone wanting to perform an activity subject to the NWPs on tribal land is required to obtain an activity specific water quality certification or waiver from EPA before proceeding under a NWP. (Encl 2)

The TXGLO, by letter dated March 7, 2017, stated that pursuant to Title 31 Natural Resources and Conservation, Part 16 Coastal Coordination Council rules, Section 506.30, the NWP Reissuance has been reviewed for consistency with the Texas

Coastal Management Program (CMP). The TXGLO has determined that there are no significant unresolved consistency issues with respect to the 2017 NWP. Therefore, this project is consistent with the CMP goals and policies. (Encl 3)

Under Texas Natural Resource Code, Title 3, and the Texas Water Code, Chapter 26, the Texas Railroad Commission (TXRCC) has the responsibility for the prevention of pollution that might result from activities associated with the exploration, development, and production of oil, gas, or geothermal resources of the State. The 60-day period for WQC ended on March 6, 2017 and no response was received from the TXRCC. Therefore, WQC is considered waived for these activities.

### **11.0 Measures to Ensure No More than Minimal Adverse Environmental Effects**

The terms and conditions of the NWP, including the pre-construction notification (PCN) requirements and the regional conditions listed in Section 9.0 of this document, will ensure that this NWP authorizes only activities with no more than minimal individual and cumulative adverse environmental effects. High value waters will be protected by the restrictions in general condition 22, the regional conditions discussed in this document, and the PCN requirements of the NWP. Through the PCNs, the Albuquerque, Galveston, Fort Worth and Tulsa Districts will review certain activities on a case-by-case basis to ensure that those activities result in no more than minimal adverse environmental effects, individually and cumulatively. Through the PCN review process, the District Engineer can add special conditions to a NWP authorization to ensure that the NWP activity results in no more than minimal adverse environmental effects, individually and cumulatively. During the PCN process, the District Engineer may also exercise discretionary authority and require an individual permit for a proposed activity that will result in more than minimal individual and cumulative adverse environmental effects.

For those activities where compensatory mitigation is required to offset authorized losses of jurisdictional waters and wetlands so that the net adverse environmental effects are no more than minimal, the Albuquerque, Galveston, Fort Worth and Tulsa Districts have developed standard operating procedures and practices for compensatory mitigation. The standards ensure that the activities authorized by this NWP will result in no more than minimal individual and cumulative adverse environmental effects in the region.

If, at a later time, there is clear, unequivocal evidence that the use of this NWP would result in more than minimal individual and cumulative adverse environmental effects, the modification, suspension, or revocation procedures at 33 CFR 330.4(e) or 33 CFR 330.5 will be used.

## 12.0 Final Determination

Based on the considerations discussed above, and in accordance with 33 CFR 330.4(e)(1) and 330.5(c), I have determined that this NWP, including its terms and conditions, as well as these regional conditions, will authorize only those activities that have no more than minimal individual and cumulative adverse environmental effects.

## 13.0 References

- Baker T.T. III et al. 2001. Leaf litter decomposition and nutrient dynamics in four southern forested floodplain communities. *Soil Sci Soc Am J* 65:1334–1347.
- Baldwin R.F. et al, 2006. The significance of hydroperiod and stand maturity for pool-breeding amphibians in forested landscapes. *Can J Zool* 84:1604–1615.
- Barrett, M. E. et al. 1995. Effects of highway construction and operation on water quality and quantity in an ephemeral stream in the Austin, Texas area." Technical Report-University Of Texas Center For Research In Water Resources.
- Battle J.M. and S.W. Golladay. 2007. How hydrology, habitat type, and litter quality affect leaf breakdown in wetlands of the Gulf Coastal Plain of Georgia. *Wetlands* 27:251–260.
- Brodman R.J. et al. 2003. Multivariate analyses of the influences of water chemistry and habitat parameters on the abundances of pond-breeding amphibians. *J Freshw Ecol* 18:425–436.
- Brooks R.T. 2000. Annual and seasonal variation and the effects of hydroperiod on benthic macroinvertebrates of seasonal forest ("vernal") ponds in central Massachusetts, USA. *Wetlands* 20: 707–715.
- Dunton, K.H et al. 2003. Concluding Report. Effects of dredge deposits on seagrasses: an integrative model for Laguna Madre. Volume I: Executive Summary. U.S. Army Corps of Engineers, Galveston District, Galveston, Texas.
- Euliss N.H. Jr et al. 2006. North American prairie wetlands are important nonforested land-based carbon storage sites. *Sci Total Environ* 361:179–188.
- Fisher S. G. et al. 1982. Temporal succession in a desert stream following flash flooding. *Ecol. Monogr.*, 52:93-110.
- Fritz, K.M. et al. 2006. Field Operations Manual for Assessing the Hydrologic Permanence and Ecological Condition of Headwater Streams. EPA/600/R-06/126. U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C.

Gomi, T., et al. 2002. Understanding processes and downstream linkages of headwater systems. *BioScience* 52(10):905-916.

Hill, B., & T. Gardner. 1987. Benthic Metabolism in a Perennial and an Intermittent Texas Prairie Stream. *The Southwestern Naturalist*, 32(3), 305-311.

Inkley M.D. et al. 2008 Effects of drying regime on microbial colonization and shredder preference in seasonal woodland wetlands. *Freshw Biol* 53:435–445

Jakob C. et al. 2003 Breeding phenology and larval distribution of amphibians in a Mediterranean pond network with unpredictable hydrology. *Hydrobiologia* 499:51–61

Kirkman L.K. et al. 2000. Depressional wetland vegetation types: a question of plant community development. *Wetlands* 20:373–385

Larimore, R. W. et al. 1959. Destruction and re-establishment of stream fish and invertebrates affected by drought. *Trans. Am. Fish. Soc.* 88:261-285.

Levick, L.. et al. 2008. The ecological and hydrological significance of ephemeral and intermittent streams in the arid and semi-arid American southwest. U.S. EPA and U.S. Department of Army/ARS Southwest Watershed Research Center, EPA1600/R-081134, ARS/233046. U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C.

Magnusson A. K. and, D.D Williams. 2006. The roles of natural temporal and spatial variation versus biotic influences in shaping the physicochemical environment of intermittent ponds: a case study. *Arch Hydrobiol* 165:537–556.

Matthews, W. J. 1987. Physicochemical tolerances and selectivity of stream fishes as related to their geographic ranges and local distributions, p. 111-120. In: W. J. Matthews and D. C. Heins (eds.). *Community and evolutionary ecology of North American stream fishes*. Univ. Oklahoma Press, Norman.

Matthews, W.J. 1988. North American prairie streams as systems for ecological study. *Journal of the North American Benthological Society*. Vol. 7, No. 4, pp. 387-409.

Nadeau, T.L. and M.C. Rains. 2007. Hydrological connectivity between headwater streams and downstream waters: how science can inform policy. *Journal of the American Water Resources Association* 43(1): 118-133.

Petersen R. C. et al.. 1987. Stream management: emerging global similarities. *Ambio* 16:166.

Peterson, B.J., et al. 2001. Control of nitrogen export from watersheds by headwater streams. *Science* 292:86-90.

Resh, V. H., and G. Grodhaus. 1983. Aquatic insects in urban environments. *Urban entomology: interdisciplinary perspectives*. Praeger Publishers, New York. Pages 247-276.

Rosen, D. J., et al. 2008. Conservation strategies and vegetation characterization in the Columbia Bottomlands, an under-recognized southern floodplain forest formation. *Natural Areas Journal*, 28(1), 74-82.

Schneider D.W. 1999 Snowmelt ponds in Wisconsin: influence of hydroperiod on invertebrate community structure. In: Batzer DP et al (eds) *Invertebrates in freshwater wetlands of North America: ecology and management*. Wiley, New York.

Semlitsch R.D. et al. 1996. Structure and dynamics of an amphibian community: evidence from a 16-year study of a natural pond. In: Cody ML, Smallwood JA (eds) *Long-term studies of vertebrate communities*. Academic, San Diego, California.

Skidds D.E. and .FC. Golet. 2005 Estimating hydroperiod suitability for breeding amphibians in southern Rhode Island seasonal forest ponds. *Wetlands Ecol Manag* 13:349–366

SMITH, P. W. 1963. A study of seasonal distribution of fishes in the Kaskaskia River ditch, a highly modified stream in eastern Illinois. *Copeia*, 1963:251-259.

Wheeler, AP., et al. 2005. Impacts of new highways and subsequent landscape urbanization on stream habitat and biota. *Reviews in Fisheries Science* 13: 141 -164.

Zale, A.V., et al. 1989. The physicochemistry, flora, and fauna of intermittent prairie streams: a review of the literature. U.S. Fish and Wildlife Service Biological Report 89(5).