DECISION DOCUMENT
NATIONWIDE PERMIT 48

This document discusses the factors considered by the Corps of Engineers (Corps) during the issuance process for this Nationwide Permit (NWP). This document contains: (1) the public interest review required by Corps regulations at 33 CFR 320.4(a)(1) and (2); (2) a discussion of the environmental considerations necessary to comply with the National Environmental Policy Act; and (3) the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230). This evaluation of the NWP includes a discussion of compliance with applicable laws, consideration of public comments, an alternatives analysis, and a general assessment of individual and cumulative impacts, including the general potential effects on each of the public interest factors specified at 33 CFR 320.4(a).

1.0 Text of the Nationwide Permit

Commercial Shellfish Aquaculture Activities. Discharges of dredged or fill material in waters of the United States or structures or work in navigable waters of the United States necessary for commercial shellfish aquaculture operations in authorized project areas. For the purposes of this NWP, the project area is the area in which the operator is currently authorized to conduct commercial shellfish aquaculture activities, as identified through a lease or permit issued by an appropriate state or local government agency, a treaty, or any other easement, lease, deed, or contract which establishes an enforceable property interest for the operator. This NWP authorizes the installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures into navigable waters of the United States. This NWP also authorizes discharges of dredged or fill material into waters of the United States necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities. Rafts and other floating structures must be securely anchored and clearly marked. This NWP does not authorize:

(a) The cultivation of a nonindigenous species unless that species has been previously cultivated in the waterbody;

(b) The cultivation of an aquatic nuisance species as defined in the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990; or,

(c) Attendant features such as docks, piers, boat ramps, stockpiles, or staging areas, or the deposition of shell material back into waters of the United States as waste.

This NWP also authorizes commercial shellfish aquaculture activities in new project areas, provided the project proponent has obtained a valid authorization, such as a lease or permit issued by an appropriate state or local government agency, and those activities do not directly affect more than 1/2-acre of submerged aquatic vegetation beds.

Notification: The permittee must submit a pre-construction notification to the district engineer if: (1) dredge harvesting, tilling, or harrowing is conducted in areas inhabited by submerged aquatic vegetation; (2) the activity will include a species not previously cultivated in the waterbody; (3) the activity involves a change from bottom culture to floating or suspended culture; or (4) the activity occurs in a new project area. (See general condition 31.)

In addition to the information required by paragraph (b) of general condition 31, the pre-construction notification must also include the following information: (1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the cultivated species; and (3) whether canopy predator nets are being used. (Sections 10 and 404)

Note 1: The permittee should notify the applicable U.S. Coast Guard office regarding the project.

Note 2: To prevent introduction of aquatic nuisance species, no material that has been taken from a different waterbody may be reused in the current project area, unless it has been treated in accordance with the applicable regional aquatic nuisance species management plan.

Note 3: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 defines "aquatic nuisance species" as "a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters."

1.1 Requirements

General conditions of the NWPs are in the Federal Register notice announcing the issuance of this NWP. Pre-construction notification requirements, additional conditions, limitations, and restrictions are in 33 CFR part 330.

1.2 Statutory Authority

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404 of the Clean Water Act (33 U.S.C. 1344)

1.3 Compliance with Related Laws (33 CFR 320.3)

1.3.1 General

NWPs are a type of general permit designed to authorize certain activities that have minimal individual and cumulative adverse effects on the aquatic environment and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse effects on the aquatic environment cannot be authorized

by NWPs. Individual review of each activity authorized by an NWP will not normally be performed, except when pre-construction notification to the Corps is required or when an applicant requests verification that an activity complies with an NWP. Potential adverse impacts and compliance with the laws cited in 33 CFR 320.3 are controlled by the terms and conditions of each NWP, regional and case-specific conditions, and the review process that is undertaken prior to the issuance of NWPs.

The evaluation of this NWP, and related documentation, considers compliance with each of the following laws, where applicable: Sections 401, 402, and 404 of the Clean Water Act; Section 307(c) of the Coastal Zone Management Act of 1972, as amended; Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended; the National Environmental Policy Act of 1969; the Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act; the Fish and Wildlife Coordination Act, the Federal Power Act of 1920, as amended; the National Historic Preservation Act of 1966; the Interstate Land Sales Full Disclosure Act; the Endangered Species Act; the Deepwater Port Act of 1974; the Marine Mammal Protection Act of 1972; Section 7(a) of the Wild and Scenic Rivers Act; the Ocean Thermal Energy Act of 1980; the National Fishing Enhancement Act of 1984; the Magnuson-Stevens Fishery and Conservation and Management Act, the Bald and Golden Eagle Protection Act; and the Migratory Bird Treaty Act. In addition, compliance of the NWP with other Federal requirements, such as Executive Orders and Federal regulations addressing issues such as floodplains, essential fish habitat, and critical resource waters is considered.

1.3.2 Terms and Conditions

Many NWPs have pre-construction notification requirements that trigger case-by-case review of certain activities. Two NWP general conditions require case-by-case review of all activities that may adversely affect Federally-listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20). General condition 16 restricts the use of NWPs for activities that are located in Federally-designated wild and scenic rivers. None of the NWPs authorize the construction of artificial reefs. General condition 28 prohibits the use of an NWP with other NWPs, except when the acreage loss of waters of the United States does not exceed the highest specified acreage limit of the NWPs used to authorize the single and complete project.

In some cases, activities authorized by an NWP may require other federal, state, or local authorizations. Examples of such cases include, but are not limited to: activities that are in marine sanctuaries or affect marine sanctuaries or marine mammals; the ownership, construction, location, and operation of ocean thermal conversion facilities or deep water ports beyond the territorial seas; activities that result in discharges of dredged or fill material into waters of the United States and require Clean Water Act Section 401 water quality certification; or activities in a state operating under a coastal zone management program approved by the Secretary of Commerce under the Coastal Zone Management Act. In such cases, a provision of the NWPs states that an NWP does not obviate the need to obtain other authorizations required by law. [33 CFR 330.4(b)(2)]

Additional safeguards include provisions that allow the Chief of Engineers, division engineers, and/or district engineers to: assert discretionary authority and require an individual permit for a specific activity; modify NWPs for specific activities by adding special conditions on a case-by-case basis; add conditions on a regional or nationwide basis to certain NWPs; or take action to suspend or revoke an NWP or NWP authorization for activities within a region or state. Regional conditions are imposed to protect important regional concerns and resources. [33 CFR 330.4(e) and 330.5]

1.3.3 Review Process

The analyses in this document and the coordination that was undertaken prior to the issuance of the NWP fulfill the requirements of the National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other acts promulgated to protect the quality of the environment.

All NWPs that authorize activities that may result in discharges into waters of the United States require water quality certification. NWPs that authorize activities within, or affecting land or water uses within a state that has a Federally-approved coastal zone management program, must also be certified as consistent with the state's program. The procedures to ensure that the NWPs comply with these laws are described in 33 CFR 330.4(c) and (d), respectively.

1.4 Public Comment and Response

For a summary of the public comments received in response to the February 16, 2011, Federal Register notice, refer to the preamble in the Federal Register notice announcing the reissuance of this NWP. The substantive comments received in response to the February 16, 2011, Federal Register notice were used to improve the NWP by changing NWP terms and limits, notification requirements, and/or NWP general conditions, as necessary.

The Corps proposed to modify this NWP by removing the reporting requirement, which applied to all activities that did not require pre-construction notification. We also proposed to add the information previously required in that report to the PCN information requirements. This information includes: a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; the name(s) of the cultivated species; and whether canopy predator nets are being used. In addition, we proposed to remove the pre-construction notification requirement for changes in species cultivated, as long as those species had been previously cultivated in the waterbody. We proposed to modify this NWP to authorize activities associated with the expansion of existing commercial shellfish aquaculture operations. We requested comments on modifying this NWP or issuing a new NWP to authorize new commercial shellfish aquaculture activities.

Many commenters said the NWP should be reissued, and recommended many changes. Several commenters stated that this NWP should not be reissued. Most commenters expressed support for removing the reporting requirements for all activities that did not require pre-construction notification, stating that the paperwork was unnecessary given the current regulation of the industry by other entities, such as state and local governments. One commenter said that the reporting requirements should be maintained to ensure protection of resources. Other commenters suggested that pre-construction notification should be required for all activities. Several commenters said that the NWP should only authorize maintenance activities. One commenter stated that shellfish aquaculture methods are sufficiently different for the species cultivated that issuing a single NWP to authorize these activities is inappropriate. Another commenter said that all commercial shellfish aquaculture activities should be authorized under one NWP. Two commenters stated that the NWP should only authorize harvesting that occurs by hand. One commenter stated that these activities may impact tribal fishery access and fishing rights, and coordination with the affected tribes should be required.

We have reissued this NWP and made several changes. Properly sited, operated, and maintained commercial shellfish aquaculture activities support populations of shellfish that provide important ecological functions and services for coastal waters, and should be authorized by a single NWP. We have removed the reporting requirements for this NWP and substantially reduced the number of pre-construction notification thresholds. Division engineers may regionally condition this NWP to establish additional pre-construction notification thresholds if necessary to ensure that this NWP authorizes only those activities that have minimal adverse effects on the aquatic environment. We do not agree that pre-construction notification should be required for all activities authorized by this NWP, because these activities are regulated by a number of other government agencies, especially at the federal and state government levels. In addition, the discharges of dredged or fill material into waters of the United States authorized by this NWP will result in minimal adverse environmental effects to the environmental criteria established under the Clean Water Act. The shellfish populations supported by the activities authorized by this NWP help support the objective of the Clean Water Act because they improve water quality through the conversion of nutrients into biomass (i.e., shellfish growth) and the removal of suspended materials through filter feeding. Commercially grown shellfish also provide some habitat functions for the aquatic environment. Impacts to submerged aquatic vegetation will, in many cases, be evaluated through the pre-construction notification review process. For commercial shellfish aquaculture activities in new project areas, adverse effects to submerged aquatic vegetation will be minimal because of the 1/2-acre limit. Impacts to coastal aquatic habitat and species of concern in those habitats are more appropriately addressed through consultation conducted under the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act and/or Section 7 of the Endangered Species Act.

We do not agree that the NWP should be limited to hand harvesting activities. We have retained the pre-construction notification requirement for activities involving dredge harvesting, tilling, or harrowing in areas inhabited by submerged aquatic vegetation. General

condition 17, tribal rights, states that NWP activities may not impair reserved tribal rights, including treaty fishing and hunting rights. In addition, division engineers may regionally condition this NWP to identify areas where Tribes must be notified of these activities and government-to-government consultation conducted to avoid or minimize impacts to tribal fishery access and fishing rights.

One commenter said that the restoration of indigenous species would be prevented if cultivation was limited to only those species that were previously commercially cultivated. Another commenter recommended requiring pre-construction notification if there were a proposed change in species cultivated that was not part of a state-approved list. Some commenters suggested that pre-construction notification should not be required for changes in harvesting methods. Another commenter said that pre-construction notification should be required if the culture method changed from bottom culture to floating or suspended culture to allow district engineers to evaluate potential navigation issues. One commenter indicated that the NWP should authorize demonstration projects less than one acre in size and another said that non-commercial shellfish aquaculture activities should be authorized, since states, local governments, and non-governmental organizations engage in recreational and commercial aquaculture. One commenter recommended adding a provision that would require the permittee to implement measures to prevent the spread of aquatic nuisance species, such as prohibiting the transfer of materials used for commercial shellfish aquaculture activities from one project site to another unless appropriate measures have been taken to ensure that those materials are free of aquatic nuisance species. This commenter said a note should be added to the NWP, to prohibit the transfer of equipment used in commercial shellfish aquaculture activities from one waterbody to another waterbody, unless that equipment has been allowed to dry out for a minimum of 90 days or treated in accordance with a regional aquatic nuisance control plan, to prevent the introduction of aquatic nuisance species into the other waterbody.

We have modified this NWP to provide more flexibility in the species cultivated, specifically, to allow the cultivation of nonindigenous species as long as those species have been previously cultivated in the waterbody. We recognize that there has been commercial production of nonindigenous species over many years in certain waterbodies, and activities requiring Department of the Army authorization associated with those commercial operations should be authorized by this NWP. We have retained the prohibitions against cultivating aquatic nuisance species defined by the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. We have also added Note 2 to the NWP, to reduce the risk of introducing aquatic nuisance species by requiring treatment of materials taken from one waterbody to another in accordance with the applicable regional aquatic nuisance species management plan. Division engineers may add regional conditions to the NWP to make permittees aware of the regional aquatic nuisance species management plan that may be applicable to NWP 48 activities.

We agree that pre-construction notification should not be required for changes in harvesting methods because harvesting methods have temporary impacts and result in minimal adverse effects. A possible exception is dredge harvesting in areas inhabited by submerged aquatic

vegetation, which still requires pre-construction notification. We also agree that pre-construction notification should be required if the grower proposes to change from bottom culture to floating or suspended culture in a project area, or if it is an activity in a new project area that requires the installation and use of floating or suspended gear, so that effects to navigation can be evaluated. This NWP authorizes commercial shellfish aquaculture activities undertaken by states, local governments, and non-governmental organizations. Shellfish seeding activities to improve shellfish populations may be authorized by NWP 27. Small recreational shellfish aquaculture activities may be authorized by other applicable NWPs, such as NWP 4. Other recreational shellfish aquaculture activities may be authorized by regional general permits or individual permits. Restoration aquaculture activities may be authorized by NWP 27.

One commenter stated that the structures and fill activities authorized by the NWP were too broad and should be refined. This commenter recommended prohibiting the long-term use of trays if sediment is compacted and diversity is diminished. One commenter said that structures and fill should be limited to shell spat only, while another commenter stated that shell planting should be allowed on any size parcel without pre-construction notification.

The structures and fills authorized by this NWP are limited to those necessary to conduct commercial shellfish aquaculture activities. We have retained the provision that states that the NWP does not authorize attendant features such as docks, piers, boat ramps, stockpiles or staging areas, or the deposition of shell material back into waters of the United States as waste. We have removed the pre-construction notification threshold for commercial shellfish aquaculture activities that are more than 100 acres in size, because we do not believe it is necessary to require pre-construction notification for existing operations with a valid lease, permit, or other appropriate instrument that has been approved by the appropriate state or local government agency, unless the activity triggers any of the pre-construction notification thresholds.

One commenter requested changes to the definition of shell seeding, citing concerns over the use of potentially environmentally damaging materials. Another commenter supported the use of terms such as "suitable substrate" and "appropriate materials" due to the decreasing availability of shell cultch and new research and development regarding materials. One commenter said that use of the term "submerged aquatic vegetation" allowed for the destruction of eelgrass, because eelgrass is often not inundated with tidal waters. One commenter asked whether traditional oyster culture practices were of special concern.

The definition of the term "shellfish seeding" in the Definitions section of the NWP provides examples of appropriate materials that may be used for shellfish seeding activities. Through the issuance of regional conditions, division engineers can restrict or prohibit the use of certain materials for shellfish seeding. In response to a pre-construction notification, district engineers may add activity-specific conditions to an NWP authorization to prohibit the use of certain materials for shellfish seeding. Eelgrass is commonly considered to be a species of submerged aquatic vegetation and we intend it to be covered by the provisions regarding

submerged aquatic vegetation, regardless of whether it is fully submerged in all tidal conditions or not.

Many commenters requested clarification as to when pre-construction notification is required and what constitutes a project area for the purposes of this NWP. Several commenters recommended that pre-construction notifications should only be required once and not for each subsequent reissuance of this NWP if the commercial shellfish aquaculture operation has not changed. One commenter asked if the lease holder is required to provide pre-construction notifications annually if the lease covers an area greater than 100 acres. One commenter inquired whether pre-construction notification is required when the operator is only working on 30 acres of a 200-acre project site. One commenter said that multiple pre-construction notifications should not be required from a lease holder that has multiple 100-acre leases; instead, one pre-construction notification should cover all those leases.

We have reduced the number of pre-construction notification thresholds in this NWP. The pre-construction notification thresholds in this NWP focus on those activities that should be reviewed by district engineers to: (1) ensure that floating or suspended aquaculture facilities do not cause more than minimal adverse effects on navigation or, (2) ensure that both cultivating species that have not been previously cultivated in the waterbody and dredge harvesting, tilling, or harrowing in areas of submerged aquatic vegetation do not cause more than minimal adverse effects on the aquatic environment.

To support our objective to be more consistent with state and local agencies that regulate commercial shellfish aquaculture activities, we have redefined project area so that it is based on leases or permits issued by an appropriate state or local government agency that is responsible for allocating subtidal or intertidal lands for commercial shellfish production. The project area may also be based on rights to conduct shellfish aquaculture that are established by treaty, such as treaties executed between the United States Government and Indian Tribes. Project area may also be identified through an easement, lease, deed, or contract which establishes an enforceable property interest to conduct aquaculture activities on subtidal or intertidal lands.

We have removed the pre-construction notification requirement for relocating existing operations into portions of the project area not previously used for aquaculture activities, since the permit or lease issued by the state or local government agency has already authorized that area for use in commercial shellfish aquaculture. There is no need to address expansions in this NWP if the proposed expansions are within the project area authorized by the state or local government lease or other appropriate instrument. For example, pre-construction notification is not required if an operator who is only working on 30 acres of a 200-acre project area decides to conduct operations beyond those 30 acres within the 200 acre project area.

We have removed the pre-construction notification threshold for project areas greater than 100 acres. Since we have limited the pre-construction notification thresholds to focus on activities that may adversely affect submerged aquatic vegetation and changes in operations

that may adversely affect navigation or involve species not previously cultivated in the waterbody, most on-going activities will not require pre-construction notification, thereby substantially decreasing the paperwork burden on current commercial shellfish aquaculture operators. The lease holder is not required to provide a pre-construction notification annually no matter what the size of the project area as long as the lease holder has a valid lease, permit, or other appropriate instrument that has been approved by the appropriate state or local government agency for the project area, and none of the pre-construction notification thresholds are triggered. For example, pre-construction notification is not required if the lease holder is only working within an existing authorized 200-acre project area no matter how much or little of that area is cultivated . However, if the lease holder proposes to cultivate a species of oyster in the 200-acre project area not currently present in the waterbody, pre-construction notification would be required. The activities also do not require pre-construction notification unless the activities involve dredge harvesting, tilling, or harrowing in areas of submerged aquatic vegetation. If the lease holder's operations within the 200-acre project area change from one on-bottom technique to another on-bottom technique, pre-construction notification is not required. However, if the operations are proposed to change from an on-bottom culture method to a floating or suspended culture method, pre-construction notification is required. Lastly, if an operator obtains a lease for a new project area and wishes to conduct any commercial shellfish aquaculture activities in the new project area, pre-construction notification is required.

One commenter said that requiring pre-construction notification for aquaculture relocation and expansion is unnecessary if the area is already leased but transferred to another owner. Another commenter recommended that any NWP authorizations should still be valid when the lease is transferred to another operator and use has not changed. One commenter stated that pre-construction notification should not be required for expansions into newly leased areas since the site conditions are usually the same.

Pre-construction notification is not required for expansions of commercial shellfish activities as long as the expansion occurs within the project area specified by an permit, lease, or other instrument issued by the appropriate state or local agency, and as long as none of the pre-construction notification thresholds are triggered. This would apply to an activity in a new location within the project area, or to an activity that would utilize a larger acreage of the project area, as long as none of those activities require pre-construction notification. If an activity is proposed by an operator in a new project area, however, pre-construction notification is required. An NWP verification can be transferred to a new project proponent, if he or she has obtained an interest in the subtidal or intertidal lands, provided appropriate procedures are followed for the transfer of the NWP verification (see general condition 29, transfer of nationwide permit verifications).

One commenter asked whether or not an NWP verification can be issued prior to a state issuing a lease. Another commenter said that NWP 48 should be delegated to the states who issue leases to reduce duplicative paperwork. One commenter stated that pre-construction notification should not be required when a state already evaluates impacts to submerged aquatic vegetation prior to granting leases. Another commenter said that certain states do not

issue leases in areas with submerged aquatic vegetation, so it is not necessary for the Corps to address that issue.

The district engineer may issue an NWP verification before the state makes its decision on a lease application. It is necessary to respond to a complete pre-construction notification within 45 days to retain the authority to add activity-specific conditions, which would ensure that the NWP activity results in minimal adverse effects on the aquatic environment. Since there is not consistent regulation of commercial shellfish aquaculture activities among all of the states, we do not agree that certain Federal interests, such as navigation and impacts to special aquatic sites, should be delegated to the states. In evaluating a pre-construction notification triggered by potential impacts to submerged aquatic vegetation, the district engineer would consider any evaluation of such impacts that had been previously conducted by the state if this is submitted with the PCN.

Many commenters expressed concerns regarding impacts to species protected under the Endangered Species Act, designated critical habitat, and essential fish habitat. One commenter asked if compliance with the Endangered Species Act was required for both existing and new activities. Another recommended that a detailed eelgrass, macroalgae, and forage fish survey should be required for each pre-construction notification. One commenter stated that NWP authorization should not be granted in areas adjacent to forage fish or critical habitat.

Activities authorized by this NWP must comply with general condition 18, endangered species. Any new or existing activity that involves discharges of dredged or fill material or structures or work in navigable waters of the United States that might affect listed species or designated critical habitat require pre-construction notification to the district engineer, so that Section 7 consultation can be conducted. We do not agree that pre-construction notifications should include surveys for eelgrass, microalgae, or forage fishes. The district engineer may request additional information from the project sponsor if needed to conduct Section 7 consultation. An activity may be authorized in critical habitat if a section 7 biological opinion is issued and impacts to critical habitat are authorized.

One commenter recommended that the Corps work closely with the National Oceanic and Atmospheric Administration to streamline the review and approval of aquaculture projects. Some commenters said that the commercial shellfish aquaculture industry is not sufficiently regulated at the local, state, or federal level. One commenter said that enforceable conditions need to be added to NWP 48 authorizations to protect the aquatic environment. One commenter recommended implementing a regional ecosystem-based management approach.

We have worked closely with the National Oceanic and Atmospheric Administration and other Federal agencies to develop this NWP, and we disagree that there is not already sufficient government oversight of these activities at the various levels of government. In response to a pre-construction notification, the district engineer may add activity-specific conditions to the NWP authorization to ensure that the authorized activity results in minimal

adverse effects on the aquatic environment, individually and cumulatively. A regional ecosystem-based management approach is more appropriately undertaken by Corps districts and interested Federal, state, and local government agencies, not at the national level.

Many commenters expressed concern regarding the environmental impacts associated with expansions of commercial shellfish aquaculture activities and for new activities. One commenter said that expansion proposals should not be reviewed as restoration activities since non-native species are a serious threat. Several commenters stated that the environmental benefits do not offset the environmental impacts, introduction of invasive species, impacts to native species such as flatfish and other sandy bottom species, reduction of species diversity, elimination of native animal and plant species, harassment and destruction of migrating birds, and the introduction of plastics. Other commenters expressed concern regarding impacts from geoduck cultivation and harvesting on the environment as well as on wild geoduck populations, and the cultivation and harvesting of other non-native species. Two commenters stated that geoduck cultivation and harvesting has only minimal impacts.

When properly sited, operated, and maintained, commercial shellfish aquaculture activities generally result in minimal adverse effects on the aquatic environment and in many cases provide environmental benefits by improving water quality and wildlife habitat, and providing nutrient cycling functions. These activities are subjected to an extensive amount of regulation at the Federal and state government levels, and often the local government level. The introduction of invasive species can occur through many mechanisms, and the types of species approved for commercial aquaculture activities are regulated. This NWP does not authorize discharges of dredged or fill material or structures or work in navigable waters of the United States associated with the cultivation of nonindigenous species that have not been previously cultivated in the waterbody or the cultivation of aquatic nuisance species as defined in the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. Furthermore, division engineers may add regional conditions to the NWP to require permittees to use specific practices that will prevent the spread of aquatic nuisance species. Such measures may vary, depending on the species of concern and which techniques would be the most effective means to prevent the spread of such species. Adverse effects that may result from geoduck cultivation are more appropriately addressed by Corps districts, since this activity is limited in geographic scope. Division engineers may regionally condition this NWP to restrict or prohibit its use to authorize discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States associated with geoduck production.

Several commenters stated that the expansion of commercial shellfish aquaculture activities will result in more than minimal cumulative adverse effects and should not be authorized by NWP. One commenter said that all activities authorized by this NWP should require reporting to assess cumulative effects. Another commenter suggested that cumulative effects on water quality should be evaluated for water bodies with multiple aquaculture facilities.

As stated above, commercial shellfish aquaculture activities provide habitat, water quality, and nutrient cycling functions and when properly sited, operated, and maintained are unlikely to result in more than minimal cumulative adverse effects on the aquatic environment. Division engineers may restrict or prohibit use of this NWP in geographic regions or specific waterbodies where more than minimal cumulative adverse effects may occur.

One commenter stated that shellfish aquaculture activities have economic impacts that were not sufficiently addressed in the draft decision documents. For example, county and state health agencies are required to regulate water quality, which costs taxpayer money. This commenter said that changes to aesthetics associated with expansion of these activities, such as noise, odor, and viewshed impacts should also be considered. Impacts to recreational uses of the affected waterbodies could occur if expansions greater than 100 acres in size are authorized. This commenter also said that new and expanded operations should not be proposed in national parks or historic monuments, but existing operations should be allowed to continue. The commenter also stated that any projects in river delta regions should be carefully evaluated due to the sensitive nature of these brackish environments.

The draft decision documents briefly discuss economics as one of the public interest review factors that are considered before the Corps issues a permit, including a general permit. Shellfish aquaculture activities, in general, help improve water quality because many of the commercially cultivated species are filter feeders that remove nutrients and suspended materials from the water column. By removing nutrients, eutrophication and similar water quality problems are lessened. Water quality benefits provided by commercially grown shellfish help reduce costs of remediating local water quality problems. Commercial shellfish aquaculture activities have minimal adverse effects to aesthetics, and are likely to result in little change in local baseline levels of noise, odor, or views when compared to other waterfront uses in coastal residential areas, such as private and commercial boats, as well as the piers, wharves, marinas, and anchorage or mooring areas where those vessels are kept. Coastal areas are used by a wide variety of people. Effects on recreational uses of the waterbody should also be considered during the review of specific commercial shellfish aquaculture activities. Division engineers may regionally condition this NWP to restrict or prohibit its use to authorize new project areas and/or new activities in existing project areas in national parks or in the vicinity of historic monuments. The protection of waters near river deltas or other categories of waters is more appropriately accomplished through regional conditions imposed by division engineers.

One commenter stated that because commercial shellfish aquaculture may be limited by farm runoff, increasing production could require farmland to cease in operation. Another commenter stated that shellfish farming is a good gauge of water quality in an area since poor water quality necessitates closure of shellfish farms. In contrast, another commenter said the potential for aquaculture operations to harvest continuously as farm size increased would result in permanently suspended particulates and increased turbidity which would damage ecosystems.

Changes in farming operations that may be related to commercial shellfish aquaculture activities in nearby waters is outside of the Corps regulatory authority. Such issues are more appropriately addressed by state or local governments, who have the primary responsibility for land use decisions. We recognize that commercial shellfish aquaculture can help improve water quality. Harvesting operations may increase turbidity, but we believe such impacts are temporary and minor.

We received many comments in response to our proposal to consider issuing a new NWP or modifying NWP 48 to authorize new commercial shellfish aquaculture activities. Many commenters supported modifying NWP 48 to authorize new activities, and suggested terms and conditions. One commenter recommended limiting new activities to ten acres or less. One commenter stated that there should be no limits on new activities because shellfish aquaculture has only minimal, short-term adverse environmental impacts, and the shellfish themselves provide valuable ecological services. Two commenters stated that all new shellfish aquaculture activities except floating culture should be authorized under the NWP, because floating facilities have potential to impact navigation. One commenter said limitations on new activities should be imposed on NWP 48 and reconsidered when the proposal to reissue the NWPs is developed in 2016. Other commenters said that new activities should not be authorized by NWP because of their environmental impacts. Another commenter stated that new activities should not be authorized by NWP unless bottom culture methods are used (except for grow-out bags), harvesting is done by hand, and only native species are cultivated. One commenter stated that baseline habitat assessments should be provided and no operations should occur within 180 feet of marine vegetation, eelgrass, or sand dollar beds.

We are modifying NWP 48 to authorize commercial shellfish aquaculture activities in new project areas, provided the project proponent obtains a valid authorization (e.g., a lease or permit from the appropriate state or local government agency responsible for granting such leases or permits) and the activity will not directly affect more than 1/2-acre of submerged aquatic vegetation beds. Pre-construction notification is required for all commercial shellfish aquaculture activities in new project areas. Pre-construction notification is also required for activities in a project area if they involve dredge harvesting, tilling, or harrowing in areas inhabited by submerged aquatic vegetation or if the activities involve the change from bottom culture to floating or suspended culture in order to assess potential impacts to navigation. In addition, general condition 14, proper maintenance, requires the permittee to properly maintain any authorized structure or fill. Therefore, any authorized commercial shellfish aquaculture activity and its associated equipment shall be properly maintained so as to not pose a hazard to navigation. The pre-construction notification thresholds will provide an opportunity for district engineers to evaluate the potential adverse effects to navigation and vegetated shallows, conservation, and other applicable public interest review factors, and ensure that those adverse effects are minimal. We agree that commercial shellfish aquaculture activities can provide important functions and services to the aquatic environment and should be authorized by NWP, with appropriate notification thresholds and limits. Division engineers may regionally condition this NWP to restrict or prohibit its use in

specific waters or geographic areas, if there are concerns that these activities may have more than minimal adverse effects on certain species or specific types of aquatic resources.

2.0 Alternatives

This evaluation includes an analysis of alternatives based on the requirements of NEPA, which requires a more expansive review than the Clean Water Act Section 404(b)(1) Guidelines. The alternatives discussed below are based on an analysis of the potential environmental impacts and impacts to the Corps, Federal, Tribal, and state resource agencies, general public, and prospective permittees. Since the consideration of off-site alternatives under the 404(b)(1) Guidelines does not apply to specific projects authorized by general permits, the alternatives analysis discussed below consists of a general NEPA alternatives analysis for the NWP.

2.1 No Action Alternative (No Nationwide Permit)

The no action alternative would not achieve one of the goals of the Corps Nationwide Permit Program, which is to reduce the regulatory burden on applicants for activities that result in minimal individual and cumulative adverse effects on the aquatic environment. The no action alternative would also reduce the Corps ability to pursue the current level of review for other activities that have greater adverse effects on the aquatic environment, including activities that require individual permits as a result of the Corps exercising its discretionary authority under the NWP program. The no action alternative would also reduce the Corps ability to conduct compliance actions.

If this NWP is not available, substantial additional resources would be required for the Corps to evaluate these minor activities through the individual permit process, and for the public and Federal, Tribal, and state resource agencies to review and comment on the large number of public notices for these activities. In a considerable majority of cases, when the Corps publishes public notices for proposed activities that result in minimal adverse effects on the aquatic environment, the Corps typically does not receive responses to these public notices from either the public or Federal, Tribal, and state resource agencies. Another important benefit of the NWP program that would not be achieved through the no action alternative is the incentive for project proponents to design their projects so that those activities meet the terms and conditions of an NWP. The Corps believes the NWPs have significantly reduced adverse effects to the aquatic environment because most applicants modify their projects to comply with the NWPs and avoid the delays and costs typically associated with the individual permit process.

In the absence of this NWP, Department of the Army (DA) authorization in the form of another general permit (i.e., regional or programmatic general permits, where available) or individual permits would be required. Corps district offices may develop regional general permits if an NWP is not available, but this is an impractical and inefficient method for activities with minimal individual and cumulative adverse effects on the aquatic

environment that are conducted across the Nation. Not all districts would develop these regional general permits for a variety of reasons. The regulated public, especially those companies that conduct activities in more than one Corps district, would be adversely affected by the widespread use of regional general permits because of the greater potential for lack of consistency and predictability in the authorization of similar activities with minimal individual and cumulative adverse effects on the aquatic environment. These companies would incur greater costs in their efforts to comply with different regional general permit requirements between Corps districts. Nevertheless, in some states Corps districts have issued programmatic general permits to take the place of this and other NWPs. However, this approach only works in states with regulatory programs comparable to the Corps Regulatory Program.

2.2 National Modification Alternatives

Since the Corps Nationwide Permit program began in 1977, the Corps has continuously strived to develop NWPs that authorize activities that result only in minimal individual and cumulative adverse effects on the aquatic environment. Every five years the Corps reevaluates the NWPs during the reissuance process, and may modify an NWP to address concerns for the aquatic environment. Utilizing collected data and institutional knowledge concerning activities authorized by the Corps regulatory program, the Corps reevaluates the potential impacts of activities authorized by NWPs. The Corps also uses substantive public comments on proposed NWPs to assess the expected impacts. This NWP was developed to authorize structures and work in navigable waters of the United States, and discharges of dredged or fill material into waters of the United States, for commercial shellfish aquaculture activities, provided those activities have minimal individual and cumulative adverse effects on the aquatic environment. The Corps has considered suggested changes to the terms and conditions of this NWP, as well as modifying or adding NWP general conditions, as discussed in the preamble of the Federal Register notice announcing the reissuance of this NWP.

In the February 16, 2011, Federal Register notice, the Corps requested comments on the proposed reissuance of this NWP. The Corps proposed to modify this NWP by removing the reporting requirement for activities that do not require pre-construction notification. The Corps also proposed to add terms prohibiting the cultivation of an aquatic nuisance species, as defined by the Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990. The Corps proposed to authorize the expansion of commercial shellfish aquaculture activities. The Corps also solicited public comment on whether the NWP should be modified to authorize new commercial shellfish aquaculture activities or new NWP should be issued to authorize such activities.

2.3 Regional Modification Alternatives

An important aspect for the NWPs is the emphasis on regional conditions to address differences in aquatic resource functions, services, and values across the nation. All Corps divisions and districts are expected to add regional conditions to the NWPs to enhance

protection of the aquatic environment and address local concerns. Division engineers can also revoke an NWP if the use of that NWP results in more than minimal individual and cumulative adverse effects on the aquatic environment, especially in high value or unique wetlands and other waters.

Corps divisions and districts also monitor and analyze the cumulative adverse effects of the NWPs, and if warranted, further restrict or prohibit the use of the NWPs to ensure that the NWPs do not authorize activities that result in more than minimal individual and cumulative adverse effects on the aquatic environment. To the extent practicable, division and district engineers will use regulatory automated information systems and institutional knowledge about the typical adverse effects of activities authorized by NWPs, as well as substantive public comments, to assess the individual and cumulative adverse effects on the aquatic environment resulting from regulated activities.

2.4 Case-specific On-site Alternatives

Although the terms and conditions for this NWP have been established at the national level to authorize most activities that have minimal individual and cumulative adverse effects on the aquatic environment, division and district engineers have the authority to impose case-specific special conditions on an NWP authorization to ensure that the authorized activities will result in minimal individual and cumulative adverse effects.

General condition 23 requires the permittee to minimize and avoid impacts to waters of the United States to the maximum extent practicable on the project site. Off-site alternatives cannot be considered for activities authorized by NWPs. During the evaluation of a pre-construction notification, the district engineer may determine that additional avoidance and minimization is practicable. The district engineer may also condition the NWP authorization to require mitigation to reduce impacts to waters of the United States and ensure that the net adverse effects on the aquatic environment are minimal. As another example, the NWP authorization can be conditioned to prohibit the permittee from conducting the activities during certain times of the year to protect specific resources. If the proposed activity will result in more than minimal adverse effects on the aquatic environment, then the district engineer will exercise discretionary authority and require an individual permit. Discretionary authority can be asserted where there are concerns for the aquatic environment, including high value aquatic habitats. The individual permit review process requires a project-specific alternatives analysis, including the consideration of off-site alternatives, and a public interest review.

3.0 Affected Environment

The affected environment consists of terrestrial and aquatic ecosystems. The total land area in the United States is approximately 2,300,000,000 acres, and the total land area in the contiguous United States is approximately 1,894,000,000 acres (Lubowski et al. 2006) . Land uses in 48 states of the contiguous United States as of 2002 is provided in Table 3.1

(Lubowski et al. 2006). In the contiguous United States, approximately 67 percent of the land is privately owned, 31 percent is held by the United States government, and two percent is owned by state or local governments (Dale et al. 2000). Developed non-federal lands comprise 4.4 percent of the total land area of the contiguous United States (Dale et al. 2000).

Table 3.1. Agricultural and non-agricultural land uses in the 48 states (Lubowski et al. 2006).

Land Use	Acres	Percent of Total
Agriculture	1,171,000,000	61.8
Forest land	425,000,000	22.4
Transportation use	27,000,000	1.4
Recreation and wildlife areas	100,000,000	5.3
National defense areas	15,000,000	0.8
Urban land	59,000,000	3.1
Miscellaneous use	97,000,000	5.1
Total land area	1,894,000,000	100.0

The Federal Geographic Data Committee has established the Cowardin system developed by the U.S. Fish and Wildlife Service (USFWS) (Cowardin et al. 1979) as the national standard for wetland mapping, monitoring, and data reporting (Dahl 2011) (see also http://www.fgdc.gov/standards/projects/FGDC-standards-projects/wetlands/fgdc-announce , accessed December 12, 2011). The Cowardin system is a hierarchical system which describes various wetland and deepwater habitats, using structural characteristics such as vegetation, substrate, and water regime as defining characteristics. Wetlands are defined by plant communities, soils, or inundation or flooding frequency. Deepwater habitats are permanently flooded areas located below the wetland boundary. In rivers and lakes, deepwater habitats are usually more than two meters deep.

There are five major systems in the Cowardin classification scheme: marine, estuarine, riverine, lacustrine, and palustrine (Cowardin et al. 1979). The marine system consists of open ocean on the continental shelf and its high energy coastline. The estuarine system consists of tidal deepwater habitats and adjacent tidal wetlands that are usually partially enclosed by land, but may have open connections to open ocean waters. The riverine system generally consists of all wetland and deepwater habitats located within a river channel. The lacustrine system generally consists of wetland and deepwater habitats located within a topographic depression or dammed river channel, with a total area greater than 20 acres. The palustrine system generally includes all non-tidal wetlands and wetlands located in tidal areas with salinities less than 0.5 parts per thousand; it also includes ponds less than 20 acres in size. Approximately 95 percent of wetlands in the conterminous United States are freshwater wetlands, and the remaining 5 percent are estuarine or marine wetlands (Dahl 2011).

The Emergency Wetlands Resources Act of 1986 (Public Law 99-645) requires the USFWS to submit wetland status and trends reports to Congress (Dahl 2011). The latest status and

trends report, which covers the period of 2004 to 2009, is summarized in Table 3.2.

Table 3.2. Estimated aquatic resource acreages in the conterminous United States in 2009 (Dahl 2011).

Aquatic Habitat Category	Estimated Area in 2009 (acres)
Marine intertidal	227,800
Estuarine intertidal non-vegetated	1,017,700
Estuarine intertidal vegetated	4,539,700
All intertidal waters and wetlands	5,785,200
Freshwater ponds	6,709,300
Freshwater vegetated	97,565,300
• Freshwater emergent wetlands	27,430,500
• Freshwater shrub wetlands	18,511,500
• Freshwater forested wetlands	51,623,300
All freshwater wetlands	104,274,600
Lacustrine deepwater habitats	16,859,600
Riverine deepwater habitats	7,510,500
Estuarine subtidal habitats	18,776,500
All wetlands and deepwater habitats	153,206,400

The acreage of lacustrine deepwater habitats does not include the open waters of Great Lakes (Dahl 2011).

According to Hall et al. (1994), there are more than 204 million acres of wetlands and deepwater habitats in the State of Alaska, including approximately 174.7 million acres of wetlands. Wetlands and deepwater habitats comprise approximately 50.7 percent of the surface area in Alaska (Hall et al. 1994).

The National Resources Inventory (NRI) is a statistical survey conducted by the Natural Resources Conservation Service (NRCS) (USDA 2009) of natural resources on non-federal land in the United States. The NRCS defines non-federal land as privately owned lands, tribal and trust lands, and lands under the control of local and State governments. The land use determined by 2007 NRI is summarized in Table 3.3. The 2007 NRI estimates that there are 110,671,500 acres of palustrine and estuarine wetlands on non-Federal land and water areas in the United States (USDA 2009). The 2007 NRI estimates that there are 48,471,100 acres of open waters on non-Federal land in the United States, including lacustrine, riverine, and marine habitats, as well as estuarine deepwater habitats.

Table 3.3. The 2007 National Resources Inventory acreages for palustrine and estuarine wetlands on non-federal land, by land cover/use category (USDA 2009).

National Resources Inventory Land Cover/Use Category	Area of Palustrine and Estuarine Wetlands (acres)
cropland, pastureland, and Conservation Reserve Program land	16,790,300
forest land	66,043,100
Rangeland	7,940,300
other rural land	14,744,800
developed land	1,571,900
water area	3,581,100
Total	110,671,500

The land cover/use categories used by the 2007 NRI are defined below (USDA 2009). Croplands are areas used to produce crops adapted for harvest. Pastureland is land managed for livestock grazing, through the production of introduced forage plants. Conservation Reserve Program land is under a Conservation Reserve Program contract. Forest land is comprised of at least 10 percent single stem woody plant species that will be at least 13 feet tall at maturity. Rangeland is land on which plant cover consists mostly of native grasses, herbaceous plants, or shrubs suitable for grazing or browsing, and introduced forage plant species. Other rural land consists of farmsteads and other farm structures, field windbreaks, marshland, and barren land. Developed land is comprised of large urban and built-up areas (i.e., urban and built-up areas 10 acres or more in size), small built-up areas (i.e., developed lands 0.25 to 10 acres in size) , and rural transportation land (e.g., roads, railroads, and associated rights-of-way outside urban and built-up areas). Water areas are comprised of waterbodies and streams that are permanent open waters.

The wetlands data from the Fish and Wildlife Service's Status and Trends study and the Natural Resources Conservation Service's National Resources Inventory should not be compared, because they use different methods and analyses to produce their results (Dahl 2011).

Leopold, Wolman, and Miller (1964) estimated that there are approximately 3,250,000 miles of river and stream channels in the United States. This estimate is based on an analysis of 1:24,000 scale topographic maps, by stream order. This estimate does not include many small streams. Many small streams are not mapped on 1:24,000 scale U.S. Geological Survey topographic maps (Leopold 1994) or included in other analyses (Meyer and Wallace 2001). In a study of stream mapping in the southeastern United States, only 20% of the stream network was mapped on 1:24,000 scale topographic maps, and nearly none of the observed intermittent or ephemeral streams were indicated on those maps (Hansen 2001). For a 1:24,000 scale topographic map, the smallest tributary found by using 10-foot contour

interval has drainage area of 0.7 square mile and length of 1,500 feet, and smaller channels are common throughout the United States (Leopold 1994). Due to the difficulty in mapping small streams, there are no accurate estimates of the total number of river or stream miles in the conterminous United States that may be classified as "waters of the United States."

The USFWS status and trends study does not assess the condition or quality of wetlands and deepwater habitats (Dahl 2011). The Nation's aquatic resource base is underestimated by the USFWS status and trends study, the National Wetland Inventory (NWI), and studies that estimate the length or number of stream channels within watersheds (see above). The status and trends study does not include Alaska and Hawaii. The underestimate by the status and trends study and the NWI results from the minimum size of wetlands detected through remote sensing techniques and the difficulty of identifying certain wetland types through those remote sensing techniques. The NWI maps do not show small or linear wetlands (Tiner 1997) that may be directly impacted by activities authorized by NWPs. For the latest USFWS status and trends study, most of the wetlands identified are larger than 1 acre, but the minimum size of detectable wetlands varies by wetland type (Dahl 2011). Some wetland types less than one acre in size can be identified; the smallest wetland detected for the most recent status and trends report was 0.1 acre (Dahl 2011). Because of the limitations of remote sensing techniques, certain wetland types are not included in the USFWS status and trends study: seagrass beds, submerged aquatic vegetation, submerged reefs, and certain types of forested wetlands (Dahl 2011). Therefore, activities authorized by NWPs will adversely affect a smaller proportion of the Nation's wetland base than indicated by the wetlands acreage estimates provided in the most recent status and trends report, or the NWI maps for a particular region.

Information on water quality in waters and wetlands, as well as the causes of water quality impairment, is collected by the U.S. Environmental Protection Agency (U.S.EPA) under sections 305(b) and 303(d) of the Clean Water Act. Table 3.4 provides U.S. EPA's most recent national summary of water quality in the Nation's waters and wetlands.

Table 3.4. The 2010 national summary of water quality data (U.S. EPA 2012).

Category of water	Total waters	Total waters assessed	Percent of waters assessed	Good waters	Threatened waters	Impaired waters
Rivers and streams	3,533,205 miles	965,693 miles	27.3	445,079 miles	6,369 miles	514,246 miles
Lakes, reservoirs and ponds	41,666,049 acres	18,796,765 acres	45.1	5,833,964 acres	38,681 acres	12,924,120 acres
Bays and estuaries	87,791 square miles	32,830 square miles	37.4	11,045 square miles	17 square miles	21,768 square miles
Coastal shoreline	58,618 miles	9,143 miles	15.6	1,746 miles	0 miles	7,396 miles
Ocean and near coastal waters	54,120 square miles	1,275 square miles	2.4	968 square miles	0 square miles	307 square miles
Wetlands	107,700,000 acres	1,311,645 acres	1.2	208,944 acres	805 acres	1,101,895 acres
Great Lakes shoreline	5,202 miles	4,431 miles	85.2	78 miles	0 miles	4,353 miles
Great Lakes open waters	60,546 square miles	53,332 square miles	88.1	62 square miles	0 square miles	53,270 square miles

According to the 2010 national summary (U.S. EPA 2012), 53% of assessed rivers and streams, 66% of assessed bays and estuaries, 81% of assessed coastal shoreline, 24% of assessed ocean and near coastal waters, and 84% of assessed wetlands are impaired.

For rivers and streams, 34 causes of impairment were identified, and the top 10 causes were pathogens, sediment, nutrients, organic enrichment/oxygen depletion, polychlorinated biphenyls, habitat alterations, metals (excluding mercury), mercury, flow alterations, and temperature. The primary sources of impairment for the assessed rivers and streams were agriculture, atmospheric deposition, unknown sources, hydrology modification, urban-related runoff/stormwater, wildlife, municipal discharges/sewage, unspecified non-point sources, habitat alterations, and resource extraction.

For bays and estuaries, 28 causes of impairment were identified, and the top 10 causes of impairment were mercury, pathogens, polychlorinated biphenyls, organic enrichment/oxygen depletion, dioxins, metals (excluding mercury), noxious aquatic plants, pesticides, algal growth, and unknown causes of impaired biota. The primary sources of impairment of bays and estuaries were atmospheric deposition, "unknown," municipal discharges/sewage, wildlife, industrial, other sources, agriculture, unspecified non-point sources, hydrologic modifications, and habitat alterations.

For coastal shorelines, 17 causes of impairment were listed, led by mercury, pathogens,

organic enrichment/oxygen depletion, metals (excluding mercury), pesticides, polychlorinated biphenyls, turbidity, nutrients, algal growth, and unknown causes of impaired biota. The top 10 sources of impairment for coastal shorelines were "unknown," atmospheric deposition, urban-related runoff/stormwater, municipal discharges/sewage, agriculture, hydrologic modifications, industrial, unspecified non-point sources, wildlife, and recreational boating and marinas.

For ocean and near coastal waters, 16 causes of impairment were identified, and the top 10 causes of impairment were mercury, pathogens, organic enrichment/oxygen depletion, nuisance exotic species, toxics, polychlorinated biphenyls, turbidity, pesticides, metals, and toxic organics. Habitat alterations were ranked eleventh. The primary sources of impairment of ocean and near coastal waters were "unknown," atmospheric deposition, recreational boating and marinas, municipal discharges/sewage, unspecified non-point sources, urban-related runoff/stormwater, recreation and tourism (non-boating), industrial, hydrologic modifications, and construction.

Most causes and sources of impairment are not due to activities regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Habitat alterations as a cause or source of impairment may be the result of activities regulated under section 404 and section 10 because they involve discharges of dredged or fill material or structures or work in navigable waters, but habitat alterations may also occur as a result of activities not regulated under those two statutes, such as the removal of vegetation from upland riparian areas. Hydrologic modifications may or may not be regulated under section 404 or section 10.

Not all of the Nation's aquatic resources are subject to regulatory jurisdiction under Section 404 of the Clean Water Act. Waters of the United States subject to Section 404 of the Clean Water Act are defined at 33 CFR part 328. Some wetlands are not subject to Clean Water Act jurisdiction because they do not meet the criteria at Part 328. In its decision in *Solid Waste County of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001), the U.S. Supreme Court ruled that Clean Water Act jurisdiction does not apply to isolated, intrastate, non-navigable waters based on their use as habitat for migratory birds. Tiner (2003) estimated that in some areas of the country, the proportion of wetlands that are geographically isolated, and may not be subject to Clean Water Act jurisdiction is approximately 20 to 50 percent of the wetland area, and there are other areas where more than 50 percent of the wetlands are geographically isolated. Geographically isolated wetlands comprise a substantial proportion of the wetlands found in regions with arid, semi-arid, and semi-humid climates, as well as areas with karst topography (Tiner 2003). However, it is difficult to determine from maps or aerial photographs whether wetlands are hydrologically isolated from other waters, because there may be small surface hydrologic connections that are not included on those maps or detected by those photographs (Tiner 2003). The scope of waters subject to Clean Water Act jurisdiction has also been affected by the U.S. Supreme Court decision in the consolidated cases of *Rapanos v. U.S.* and *Carabell v. U.S.*, but there have been no formal studies to estimate the proportion of wetlands, streams, and other aquatic resources that may have been affected by that decision.

This NWP authorizes activities in waters of the United States, including navigable waters. The waters in which this NWP would normally be used are the estuarine and marine systems of the Cowardin classification system.

Wetland functions are the biophysical processes that occur within a wetland (King et al. 2000). Wetlands provide many functions, such as habitat for fish and shellfish, habitat for waterfowl and other wildlife, habitat for rare and endangered species, food production, plant production, flood conveyance, flood-peak reduction, flood storage, shoreline stabilization, water supply, ground water recharge, pollutant removal, sediment accretion, and nutrient uptake (NRC 1992).

Functions provided by streams include sediment transport, water transport, transport of nutrients and detritus, habitat for many species of plants and animals (including endangered or threatened species), and maintenance of biodiversity (NRC 1992). Streams also provide hydrologic functions, nutrient cycling functions, food web support, and corridors for movement of aquatic organisms (Allan and Castillo 2007).

Freshwater ecosystems provide services such as water for drinking, household uses, manufacturing, thermoelectric power generation, irrigation, and aquaculture; production of finfish, waterfowl, and shellfish; and non-extractive services, such as flood control, transportation, recreation (e.g., swimming and boating), pollution dilution, hydroelectric generation, wildlife habitat, soil fertilization, and enhancement of property values (Postel and Carpenter 1997).

Marine ecosystems provide a number of ecosystem services, including fish production; materials cycling (e.g., nitrogen, carbon, oxygen, phosphorous, and sulfur); transformation, detoxification, and sequestration of pollutants and wastes produced by humans; support of ocean-based recreation, tourism, and retirement industries; and coastal land development and valuation, including aesthetics related to living near the ocean (Peterson and Lubchenco 1997).

Activities authorized by this NWP will provide a wide variety of goods and services that are valued by society. For example, commercial shellfish aquaculture activities provide sources of protein and other nutrients to human populations. Commercial shellfish aquaculture activities can also produce other compounds that are used by society.

4.0 Environmental Consequences

4.1 General Evaluation Criteria

This document contains a general assessment of the foreseeable effects of the individual activities authorized by this NWP and the anticipated cumulative effects of those activities. In the assessment of these individual and cumulative effects, the terms and limits of the

NWP, notification requirements, and the standard NWP general conditions are considered. The supplemental documentation provided by division engineers will address how regional conditions affect the individual and cumulative effects of the NWP.

The following evaluation comprises the NEPA analysis, the public interest review specified in 33 CFR 320.4(a)(1) and (2), and the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230).

The issuance of an NWP is based on a general assessment of the effects on public interest and environmental factors that are likely to occur as a result of using this NWP to authorize activities in waters of the United States. As such, this assessment must be speculative or predictive in general terms. Since NWPs authorize activities across the nation, projects eligible for NWP authorization may be constructed in a wide variety of environmental settings. Therefore, it is difficult to predict all of the indirect impacts that may be associated with each activity authorized by an NWP. For example, the NWP that authorizes 25 cubic yard discharges of dredged or fill material into waters of the United States may be used to fulfill a variety of project purposes. Indication that a factor is not relevant to a particular NWP does not necessarily mean that the NWP would never have an effect on that factor, but that it is a factor not readily identified with the authorized activity. Factors may be relevant, but the adverse effects on the aquatic environment are negligible, such as the impacts of a boat ramp on water level fluctuations or flood hazards. Only the reasonably foreseeable direct or indirect effects are included in the environmental assessment for this NWP. Division and district engineers will impose, as necessary, additional conditions on the NWP authorization or exercise discretionary authority to address locally important factors or to ensure that the authorized activity results in no more than minimal individual and cumulative adverse effects on the aquatic environment. In any case, adverse effects will be controlled by the terms, conditions, and additional provisions of the NWP. For example, Section 7 Endangered Species Act consultation will be required for activities that may affect endangered or threatened species or critical habitat.

4.2 Impact Analysis

This NWP authorizes structures, work, and discharges of dredged or fill material into navigable waters of the United States for commercial shellfish aquaculture activities.

For activities authorized by this NWP, pre-construction notification is required if: (1) dredge harvesting, tilling, or harrowing is conducted in areas inhabited by submerged aquatic vegetation; (2) the activity will include a species not previously cultivated in the waterbody; (3) the activity involves a change from bottom culture to floating or suspended culture; or (4) the activity occurs in a new project area. The pre-construction notification requirement allows district engineers to review proposed activities on a case-by-case basis to ensure that the individual and cumulative adverse effects of those activities on the aquatic environment are minimal. If the district engineer determines that the adverse effects of a particular project are more than minimal after considering mitigation, then discretionary authority will be asserted and the applicant will be notified that another form of DA authorization, such as

a regional general permit or individual permit, is required (see 33 CFR 330.4(e) and 330.5).

Additional conditions can be placed on proposed activities on a regional or case-by-case basis to ensure that the activities have minimal individual and cumulative adverse effects on the aquatic environment. Regional conditioning of this NWP will be used to account for differences in aquatic resource functions, services, and values across the country, ensure that the NWP authorizes only those activities with minimal individual and cumulative adverse effects on the aquatic environment, and allow each Corps district to prioritize its workload based on where its efforts will best serve to protect the aquatic environment. Regional conditions can prohibit the use of an NWP in certain waters (e.g., high value waters or specific types of wetlands or waters), lower pre-construction notification thresholds, or require pre-construction notification for some or all NWP activities in certain watersheds or types of waters. Specific NWPs can also be revoked on a geographic or watershed basis where the individual and cumulative adverse effects resulting from the use of those NWPs are more than minimal.

In high value waters, division and district engineers can: 1) prohibit the use of the NWP in those waters and require an individual permit or regional general permit; 2) impose an acreage limit on the NWP; 3) lower the notification threshold of the NWP to require pre-construction notification for activities with smaller impacts in those waters; 4) require pre-construction notification for some or all NWP activities in those waters; 5) add regional conditions to the NWP to ensure that the individual and cumulative adverse environmental effects are minimal; or 6) for those activities that require pre-construction notification, add special conditions to NWP authorizations, such as compensatory mitigation requirements, to ensure that the adverse effects on the aquatic environment are minimal. NWPs can authorize activities in high value waters as long as the individual and cumulative adverse effects on the aquatic environment are minimal.

The construction and use of fills for temporary access for construction may be authorized by NWP 33 or regional general permits issued by division or district engineers. The related activity must meet the terms and conditions of the specified permit(s). If the discharge is dependent on portions of a larger project that require an individual permit, this NWP will not apply. [See 33 CFR 330.6(c) and (d)]

4.3 Cumulative Effects

The Council on Environmental Quality's NEPA regulations define cumulative effects as: "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." [40 CFR 1508.7.] Therefore, the NEPA cumulative effects analysis for an NWP is not limited to activities authorized by the NWP or other DA permits and includes Federal and non-Federal activities that affect the Nation's wetlands, streams, and other aquatic resources. The cumulative effects analysis should focus on specific categories

of resources instead of the environmental effects caused by a particular action, and it requires identification of the stressors that cause degradation of those resources, including those caused by actions unrelated to the proposed action (CEQ 1997). The geographic scope of the cumulative impacts analysis is the United States and its territories, where the NWP may be used to authorize specific activities that require DA authorization. The temporal scope of the cumulative effects analysis includes past actions that have affected the Nation's wetlands, streams, and other aquatic resources, as well as present actions and reasonably foreseeable future actions that are affecting, or will affect, wetlands, streams, and other aquatic resources. The present effects of past federal, non-federal, and private actions are included in the affected environment, which is described in Section 3.0. The affected environment includes current aggregate effects of past actions, which are captured in recent national information on the quantity and quality of wetlands, streams, and other aquatic resources that is summarized in Section 3.0.

In addition to the activities authorized by this NWP, there are many activities that contribute to cumulative effects on wetlands, streams, and other aquatic resources in the United States, and alter the quantity of those resources and the functions they provide. Activities authorized by the past version of NWP 48, as well as other NWPs, individual permits, letters of permission, and regional general permits have resulted in direct and indirect impacts to wetlands, streams, and other aquatic resources. Those activities may have legacy effects that have added to the cumulative effects and affected the quantity of those resources and the functions they provide. Discharges of dredged or fill material that do not require DA permits because they are exempt from section 404 permit requirements can also adversely affect the quantity of the Nation's wetlands, streams, and other aquatic resources and the functions they provide. Discharges of dredged or fill material that convert wetlands, streams, and other aquatic resources to upland areas result in permanent losses of aquatic resource functions. Temporary fills and fills that do not convert waters or wetlands to dry land may cause short-term or partial losses of aquatic resource functions.

Cumulative effects to wetlands, streams, and other aquatic resources in the United States are not limited to the effects caused by activities regulated and authorized by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Other federal, non-federal, and private activities also contribute to the cumulative effects to wetlands, streams, and other aquatic resources, by changing the quantity of those resources and the functions they provide. Cumulative effects to wetlands, streams, and other aquatic resources are the result of landscape-level processes (Gosselink and Lee 1989). As discussed in more detail below, cumulative effects to aquatic resources are caused by a variety of activities (including activities that occur entirely in uplands) that take place within a landscape unit, such as the watershed for a river or stream (e.g., Allan 2004, Paul and Meyer 2001, Leopold 1968) or the contributing drainage area for a wetland (e.g., Wright et al. 2006, Brinson and Malvárez 2002, Zedler and Kercher 2005).

The ecological condition of rivers and streams is dependent on the state of their watersheds (NRC 1992), because they are affected by activities that occur in those watersheds, including agriculture, urban development, deforestation, mining, water removal, flow alteration, and

invasive species (Palmer et al. 2010). Land use changes affect rivers and streams through increased sedimentation, larger inputs of nutrients (e.g., nitrogen, phosphorous) and pollutants (e.g., heavy metals, synthetic chemicals, toxic organics), altered stream hydrology, the alteration or removal of riparian vegetation, and the reduction or elimination of inputs of large woody debris (Allen 2004). Agriculture is the primary cause of stream impairment, followed by urbanization (Paul and Meyer 2001). Agricultural land use adversely affects stream water quality, habitat, and biological communities (Allan 2004). Urbanization causes changes to stream hydrology (e.g., higher flood peaks, lower base flows), sediment supply and transport, water chemistry, and aquatic organisms (Paul and Meyer 2001). Leopold (1968) found that land use changes affect the hydrology of an area by altering stream flow patterns, total runoff, water quality, and stream structure. Changes in peak flow patterns and runoff affect stream channel stability. Stream water quality is adversely affected by increased inputs of sediments, nutrients, and pollutants, many of which come from non-point sources (Paul and Meyer 2001, Allan and Castillo 2007).

Activities that affect wetland quantity and quality include: land use changes that alter local hydrology (including water withdrawal), clearing and draining wetlands, constructing levees that sever hydrologic connections between rivers and floodplain wetlands, constructing other obstructions to water flow (e.g., dams, locks), constructing water diversions, inputs of nutrients and contaminants, and fire suppression (Brinson and Malvárez 2002). Upland development adversely affects wetlands and reduces wetland functionality because those activities change surface water flows and alter wetland hydrology, contribute stormwater and associated sediments, nutrients, and pollutants, cause increases in invasive plant species abundance, and decrease the diversity of native plants and animals (Wright et al. 2006). Many of the remaining wetlands in the United States are degraded (Zedler and Kercher 2005). Wetland degradation and losses are caused by changes in water movement and volume within a watershed or contributing drainage area, altered sediment transport, drainage, inputs of nutrients from non-point sources, water diversions, fill activities, excavation activities, invasion by non-native species, land subsidence, and pollutants (Zedler and Kercher 2005).

Coastal waters are also affected by a wide variety of activities. Most inland waters in the United States drain to coastal areas, and therefore activities that occur in inland watersheds affect coastal waters (NRC 1994). Adverse effects to coastal waters are caused by habitat modifications, point source pollution, non-point source pollution, changes to hydrology and hydrodynamics, exploitation of coastal resources, introduction of non-native species, global climate change, shoreline erosion, and pathogens and toxins (NRC 1994). Eutrophication of coastal waters is caused by nutrients contributed by waste treatment systems, non-point sources, and the atmosphere, and may cause hypoxia or anoxia in coastal waters (NRC 1994). Inland land uses, such as agriculture, urban development, and forestry, adversely affect coastal waters by diverting fresh water from estuaries and by acting as sources of nutrients and pollutants to coastal waters (Millennium Ecosystem Assessment 2005). Habitat modifications are the result of dredging or filling coastal waters, inputs of sediment via non-point sources, changes in water quality, or alteration of coastal hydrodynamics (NRC 1994). Coastal development activities, including those that occur in uplands, affect marine and

estuarine habitats (Millennium Ecosystem Assessment 2005). The introduction of non-native species may change the functions and structure of coastal wetlands and other habitats (Millennium Ecosystem Assessment 2005). Substantial alterations of coastal hydrology and hydrodynamics are caused by land use changes in watersheds draining to coastal waters, the channelization or damming of streams and rivers, water consumption, and water diversions (NRC 1994). Changes in water movement through watersheds may also alter sediment delivery to coastal areas, which affects the sustainability of wetlands and intertidal habitats and the functions they provide (NRC 1994). Fishing activities may also modify coastal habitats by changing habitat structure and the biological communities that inhabit those areas (NRC 1994).

There is also little information on the ecological condition or the Nation's wetlands, streams, and other aquatic resources, or the amounts of functions they provide, although reviews have acknowledged that most of these resources are degraded (Zedler and Kercher 2005, Allan 2004) or impaired (U.S. EPA 2012) because of various activities and other stressors. These data deficiencies make it more difficult to characterize the affected environment to assess cumulative effects.

As discussed in Section 3.0 of this document there is a wide variety of causes and sources of impairment of the Nation's rivers, streams, wetlands, lakes, estuarine waters, and marine waters (U.S. EPA 2012), which also contribute to cumulative effects to aquatic resources. Many of those causes of impairment are point and non-point sources of pollutants that are not regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Two common causes of impairment for rivers and streams, habitat alterations and flow alterations, may be due in part to activities regulated by the Corps under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. Habitat and flow alterations may also be the caused by activities that do not involve discharges of dredged or fill material or structures or work in navigable waters. For wetlands, impairment due to habitat alterations, flow alterations, and hydrology modifications may involve activities regulated under section 404, but these causes of impairment may also be due to unregulated activities, such as changes in upland land use that affects the movement of water through a watershed or contributing drainage area or the removal of vegetation.

Many of the activities discussed in this cumulative effects section that affect wetlands, streams, and other aquatic resources are not subject to regulation under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899.

Dahl (1990) estimates that approximately 53 percent of the wetlands in the conterminous United States were lost in the 200-year period covering the 1780s to 1980s. The annual rate of wetland loss has decreased substantially since the 1970s (Dahl 2011), when wetland regulation became more prevalent (Brinson and Malvárez 2002). Between 2004 and 2009, there was no statistically significant difference in wetland acreage in the conterminous United States (Dahl 2011). According to the 2011 wetland status and trends report, during the period of 2004 to 2009 urban development accounted for 11% of wetland losses (61,630

acres), rural development resulted in 12% of wetland losses (66,940 acres), silviculture accounted for 56% of wetland losses (307,340 acres), and wetland conversion to deepwater habitats caused 21% of the loss in wetland area (115,960 acres) (Dahl 2011). Some of the losses occurred to wetlands that are not subject to Clean Water Act jurisdiction and some losses are due to activities not regulated under Section 404 of the Clean Water Act, such as unregulated drainage activities, exempt forestry activities, or water withdrawals. From 2004 to 2009, approximately 100,020 acres of wetlands were gained as a result of wetland restoration and conservation programs on agricultural land (Dahl 2011). Another source of wetland gain is conversion of other uplands to wetlands (389,600 acres during 2004 to 2009) (Dahl 2011). Inventories of wetlands, streams, and other aquatic resources are incomplete because the techniques used cannot identify some of those resources (e.g., Dahl (2011) for wetlands; Meyer and Wallace (2001) for streams).

The estimated contribution of this NWP to the cumulative effects to aquatic resources in the United States during the five year period that the NWP would be in effect, in terms of the estimated number of time this NWP would be used until it expires and the projected impacts and compensatory mitigation, is provided in Section 6.2.2. The activities authorized by this NWP will result in minor contributions to the cumulative effects that have occurred to wetlands, streams, and other aquatic resources in the United States because, as discussed in this section, they are one of many activities that affect those resources. The causes of cumulative effects discussed in this section include past, present, and reasonably foreseeable future federal, non-federal, and private activities. For the national-scale cumulative effects analysis presented in this section, it is not possible to quantify the relative contributions of the various activities that affect the quantity of wetlands, streams, and other aquatic resources and the functions they provide, because such data are not available at the national scale.

In a specific watershed, division or district engineers may determine that the cumulative adverse effects of activities authorized by this NWP are more than minimal. Division and district engineers will conduct more detailed assessments for geographic areas that are determined to be potentially subject to more than minimal cumulative adverse effects. Division and district engineers have the authority to require individual permits in watersheds or other geographic areas where the cumulative adverse effects are determined to be more than minimal, or add conditions to the NWP either on a case-by-case or regional basis to require mitigation measures to ensure that the cumulative adverse effects are minimal. When a division or district engineer determines, using local or regional information, that a watershed or other geographic area is subject to more than minimal cumulative adverse effects due to the use of this NWP, he or she will use the revocation and modification procedure at 33 CFR 330.5. In reaching the final decision, the division or district engineer will compile information on the cumulative adverse effects and supplement this document.

The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP rather than request individual permits for projects which could result in greater adverse impacts to the aquatic environment. The minimization encouraged by the issuance of this NWP, as well

as other mitigation measures that may be required for specific activities authorized by this NWP, will help reduce cumulative effects to the Nation's wetlands, streams, and other aquatic resources.

5.0 Public Interest Review

5.1 Public Interest Review Factors (33 CFR 320.4(a)(1))

For each of the 20 public interest review factors, the extent of the Corps consideration of expected impacts resulting from the use of this NWP is discussed, as well as the reasonably foreseeable cumulative adverse effects that are expected to occur. The Corps decision-making process involves consideration of the benefits and detriments that may result from the activities authorized by this NWP.

(a) Conservation. The activities authorized by this NWP will result in minor changes to the natural resource characteristics of the project area, since the NWP authorizes commercial shellfish aquaculture activities. Mitigation measures may be required to minimize impacts to conservation values.

(b) Economics. Commercial shellfish aquaculture activities will have positive impacts on the local economy. These activities will generate jobs and revenue for local growers as well as revenue to supply companies that sell materials used for these activities. Commercial shellfish aquaculture activities supply seafood for restaurants and other consumers. The authorized aquaculture activities will also benefit the community by improving the local economic base, which is affected by employment, tax revenues, community services, and property values.

(c) Aesthetics. Commercial shellfish aquaculture activities may alter the visual character of some waters of the United States, but such changes will be minor. The extent and perception of these changes will vary, depending on the size and configuration of the aquaculture activity, the nature of the surrounding area, and the public uses of the area. The use of the project area and the surrounding land may also alter local aesthetic values.

(d) General environmental concerns. Activities authorized by this NWP will affect general environmental concerns, such as water, air, noise, and land pollution. The authorized activities will also affect the physical, chemical, and biological characteristics of the aquatic environment. The adverse effects of the activities authorized by this NWP on general environmental concerns will be minor. At moderate population densities, commercially produced shellfish populations may improve general environmental concerns, such as water and habitat quality, within navigable waters by removing suspended materials and plankton from the water column in waters subject to eutrophication and by providing physical structure to the waterbody that can be used as habitat by some aquatic organisms (Dumbauld et al. 2009). Adverse effects to the chemical composition of the aquatic environment will be controlled by general condition 6, which states that the material used for construction must

be free from toxic pollutants in toxic amounts. General condition 23 requires mitigation to minimize adverse effects to the aquatic environment through avoidance and minimization at the project site. Mitigation may be required by district engineers to ensure that the net adverse effects on the aquatic environment are minimal. Specific environmental concerns are addressed in other sections of this document.

(e) Wetlands. The commercial shellfish aquaculture activities authorized by this NWP may result in impacts to tidal wetlands. In many cases the impacts will be temporary since the commercial shellfish aquaculture activities primarily occur in open waters. This NWP does not authorize attendant features that might result in the loss of wetlands, such as boat ramps, stockpiles, or staging areas. Impacts to wetlands will be minor.

Wetlands provide habitat, including foraging, nesting, spawning, rearing, and resting sites for aquatic and terrestrial species. The loss or alteration of wetlands may alter natural drainage patterns. Wetlands reduce erosion by stabilizing the substrate. Wetlands also act as storage areas for stormwater and flood waters. The loss of wetland vegetation will adversely affect water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Wetland vegetation also provides habitat for microorganisms that remove nutrients and pollutants from water. Wetlands, through the accumulation of organic matter, act as sinks for some nutrients and other chemical compounds, reducing the amounts of these substances in the water.

General condition 23 requires avoidance and minimization of impacts to waters of the United States, including wetlands, at the project site. Division engineers can regionally condition this NWP to restrict or prohibit the use of this NWP in high value tidal wetlands. District engineers will also exercise discretionary authority to require an individual permit if the wetlands to be filled are high value and the activity will result in more than minimal adverse effects on the aquatic environment. District engineers can also add case-specific special conditions to the NWP authorization to provide protection to wetlands.

(f) Historic properties. General condition 20 states that in cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act have been satisfied.

(g) Fish and wildlife values. This NWP authorizes activities in tidal waters of the United States, which provide habitat to many species of fish and wildlife. Activities authorized by this NWP may alter the habitat characteristics of tidal waters. Some species of aquatic organisms will benefit from those changes, while other species will be adversely affected (Dumbauld et al. 2009). Tidal waters, including tidal wetlands and vegetated shallows, provides food and habitat for many species, including foraging areas, resting areas, corridors for fish movement, and nesting and breeding grounds. Open waters provide habitat for fish and other aquatic organisms. Pre-construction notification is required for activities authorized by this NWP if they involve: (1) dredge harvesting, tilling, or harrowing is conducted in areas inhabited by submerged aquatic vegetation; (2) the activity will include a

species not previously cultivated in the waterbody; (3) the activity involves a change from bottom culture to floating or suspended culture; or (4) the activity occurs in a new project area. The pre-construction notification requirements provides the district engineer with an opportunity to review those activities and assess potential impacts on fish and wildlife values and ensure that the authorized activity results in minimal adverse effects on the aquatic environment.

General condition 2 will reduce adverse effects to fish and other aquatic species by prohibiting activities that substantially disrupt the movement of indigenous aquatic species, unless the primary purpose of the activity is to impound water. Compliance with general conditions 3 and 5 will ensure that the authorized activity has minimal adverse effects on spawning areas and shellfish beds, respectively. The authorized activity cannot have more than minimal adverse effects on breeding areas for migratory birds, due to the requirements of general condition 4.

Compliance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668(a)-(d)), the Migratory Bird Treaty Act (16 U.S.C. 703; 16 U.S.C. 712), and the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.), including any requirements to obtain take permits, is the responsibility of the project proponent for a particular NWP activity. General condition 19 states that the permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act.

Consultation pursuant to the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act will occur as necessary for proposed NWP activities that may adversely affect essential fish habitat. Consultation may occur on a case-by-case or programmatic basis. Division and district engineers can impose regional and special conditions to ensure that activities authorized by this NWP will result in minimal adverse effects on essential fish habitat.

(h) Flood hazards. The activities authorized by this NWP will have little or no adverse effects on the flood-holding capacity of 100-year floodplains, since these activities occur in either open navigable waters or intertidal waters. Compliance with general condition 9 will reduce flood hazards. This general condition requires the permittee to maintain, to the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters, except under certain circumstances.

(i) Floodplain values. Activities authorized by this NWP will have negligible adverse effects on the flood-holding capacity of the floodplain, as well as other floodplain values, since it authorizes only commercial shellfish aquaculture activities, which occur in open waters. For those activities that require pre-construction notification, district engineers will review the proposed activities to ensure that those activities result in minimal adverse effects on floodplain values.

General condition 23 requires avoidance and minimization of impacts to waters of the United States to the maximum extent practicable at the project site, which will reduce losses

of floodplain values.

(j) Land use. Activities authorized by this NWP will have little or no adverse effect on land use, since it is limited to commercial shellfish aquaculture activities, and those activities usually occur in navigable waters identified through a lease or permit issued by an appropriate state or local government agency, a treaty, or any other easement, lease, deed, or contract which establishes an enforceable property interest for the grower. Since the primary responsibility for land use decisions is held by state, local, and Tribal governments, the Corps scope of review is limited to significant issues of overriding national importance, such as navigation and water quality (see 33 CFR 320.4(j)(2)).

(k) Navigation. Activities authorized by this NWP will not adversely affect navigation, because these activities must comply with general condition 1. Certain activities authorized by this NWP, such as changing from bottom culture to floating or suspended culture methods, require pre-construction notification, which will allow district engineers to review those activities and determine if there will be any adverse effects on navigation.

(l) Shore erosion and accretion. The activities authorized by this NWP will have minor direct effects on shore erosion and accretion processes, since the NWP is limited to commercial shellfish aquaculture activities that occur in open waters. These activities generally occur in tidal waters. However, NWP 13, regional general permits, or individual permits may be used to authorize bank stabilization projects associated with commercial shellfish aquaculture activities. The effects of those bank stabilization projects on shore erosion and accretion will be evaluated through that authorization process.

(m) Recreation. Activities authorized by this NWP will have minor changes on the recreational uses of the area, since the NWP authorizes only commercial shellfish aquaculture activities in areas that have already been identified through leases or permits issued by state or local government agencies, a treaty, or any other easement, lease, deed, or contract that establishes an enforceable property interest for the operator. Certain recreational activities, such as bird watching, hunting, and fishing would still be available in the area.

(n) Water supply and conservation. Activities authorized by this NWP will not adversely affect surface water and groundwater supplies. This NWP authorizes commercial shellfish aquaculture activities, which usually occur in tidal waters. These activities will not increase demand for potable water in the region. Activities authorized by this NWP will not adversely affect the quality of water supplies, since they generally occur in marine and estuarine waters. Many causes of water pollution, such as discharges regulated under Section 402 of the Clean Water Act, are outside the Corps scope of review. Some water pollution concerns can be addressed through water quality management measures that may be required for activities authorized by this NWP. General condition 7 prohibits discharges in the vicinity of public water supply intakes.

(o) Water quality. Commercial shellfish aquaculture activities may have minor adverse

effects on water quality. Large populations of the species raised through commercial shellfish aquaculture activities can increase in nutrients and other and pollutants in the water.

During commercial shellfish aquaculture operations, small amounts of oil and grease from production or harvesting equipment may be discharged into the waterway. Because most production or harvesting activities will occur during a relatively short period of time, the frequency and concentration of these discharges are not expected to have more than minimal adverse effects on overall water quality.

This NWP requires water quality certification, since it authorizes discharges of dredged or fill material into waters of the United States. Most water quality concerns are addressed by the state or Tribal water quality certification agency. In accordance with general condition 25, the permittee may be required to develop and implement water quality management measures that minimizes the degradation of the aquatic environment, including water quality. The district engineer may require water quality management measures to ensure that adverse effects to water quality are minimal.

(p) Energy needs. The activities authorized by this NWP will result in negligible changes in energy consumption in the area, because the NWP authorizes only certain aspects of commercial shellfish aquaculture activities, specifically structures or work in navigable waters and discharges of dredged or fill material into those waters. Therefore, consumption of electricity, natural gas, and petroleum products is unlikely to change.

(q) Safety. The activities authorized by this NWP will be subject to Federal, state, and local safety laws and regulations. Therefore, this NWP will not adversely affect the safety of the project area.

(r) Food and fiber production. Activities authorized by this NWP will normally increase food production, through the production of commercial shellfish species. The activities authorized by this NWP will not adversely affect fiber production. These activities will not change the amount of available agricultural land in the nation. The loss of farmland will be negligible, because the activities authorized by this NWP occur in navigable waters.

(s) Mineral needs. Activities authorized by this NWP will have little or no adverse effects on demand for aggregates and stone, since these materials are usually not used for commercial shellfish aquaculture activities. Activities authorized by this NWP may increase the demand for other materials, such as steel, aluminum, and copper, which are made from mineral ores.

(t) Considerations of property ownership. The NWP complies with 33 CFR 320.4(g), which states that an inherent aspect of property ownership is a right to reasonable private use. The NWP provides expedited DA authorization for commercial shellfish aquaculture activities, provided those activities comply with the terms and conditions of the NWP and result in minimal adverse effects on the aquatic environment.

5.2 Additional Public Interest Review Factors (33 CFR 320.4(a)(2))

5.2.1 Relative extent of the public and private need for the proposed structure or work

This NWP authorizes activities in waters of the United States, especially navigable waters, for commercial shellfish aquaculture activities as long as those activities have minimal individual and cumulative adverse effects on the aquatic environment. These activities satisfy public and private needs for food and other products. The need for this NWP is based upon the number of these activities that occur annually with minimal individual and cumulative adverse effects on the aquatic environment.

5.2.2 Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work

Most situations in which there are unresolved conflicts concerning resource use arise when environmentally sensitive areas are involved (e.g., special aquatic sites, including wetlands) or where there are competing uses of a resource. The nature and scope of the activity, when planned and constructed in accordance with the terms and conditions of this NWP, reduce the likelihood of such conflict. In the event that there is a conflict, the NWP contains provisions that are capable of resolving the matter (see Section 1.2 of this document).

General condition 23 requires permittees to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable on the project site. Consideration of off-site alternative locations is not required for activities that are authorized by general permits. General permits authorize activities that have minimal individual and cumulative adverse effects on the aquatic environment and overall public interest. District engineers will exercise discretionary authority and require an individual permit if the proposed activity will result in more than minimal adverse environmental effects on the project site. The consideration of off-site alternatives can be required during the individual permit process.

5.2.3 The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited

The nature and scope of the activities authorized by the NWP will most likely restrict the extent of the beneficial and detrimental effects to the area immediately surrounding the commercial shellfish aquaculture activity. Activities authorized by this NWP will have minimal individual and cumulative adverse effects on the aquatic environment.

The terms, conditions, and provisions of the NWP were developed to ensure that individual and cumulative adverse environmental effects are minimal. Specifically, NWPs do not obviate the need for the permittee to obtain other Federal, state, or local authorizations required by law. The NWPs do not grant any property rights or exclusive privileges (see 33 CFR 330.4(b) for further information). Additional conditions, limitations, restrictions, and

provisions for discretionary authority, as well as the ability to add activity-specific or regional conditions to this NWP, will provide further safeguards to the aquatic environment and the overall public interest. There are also provisions to allow suspension, modification, or revocation of the NWP.

6.0 Clean Water Act Section 404(b)(1) Guidelines Analysis

The 404(b)(1) compliance criteria for general permits are provided at 40 CFR 230.7.

6.1 Evaluation Process (40 CFR 230.7(b))

6.1.1 Alternatives (40 CFR 230.10(a))

General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. The consideration of off-site alternatives is not directly applicable to general permits.

6.1.2 Prohibitions (40 CFR 230.10(b))

This NWP authorizes discharges of dredged or fill material into waters of the United States, which require water quality certification. Water quality certification requirements will be met in accordance with the procedures at 33 CFR 330.4(c).

No toxic discharges will be authorized by this NWP. General condition 6 states that the material must be free from toxic pollutants in toxic amounts.

This NWP does not authorize activities that jeopardize the continued existence of any listed threatened or endangered species or result in the destruction or adverse modification of critical habitat. Reviews of preconstruction notifications, regional conditions, and local operating procedures for endangered species will ensure compliance with the Endangered Species Act. Refer to general condition 18 and to 33 CFR 330.4(f) for information and procedures.

This NWP will not authorize the violation of any requirement to protect any marine sanctuary. Refer to section 6.2.3(j)(1) of this document for further information.

6.1.3 Findings of Significant Degradation (40 CFR 230.10(c))

Potential impact analysis (Subparts C through F): The potential impact analysis specified in Subparts C through F is discussed in section 6.2.3 of this document. Mitigation required by the district engineer will ensure that the adverse effects on the aquatic environment are minimal.

Evaluation and testing (Subpart G): Because the terms and conditions of the NWP specify

the types of discharges that are authorized, as well as those that are prohibited, individual evaluation and testing for the presence of contaminants will normally not be required. If a situation warrants, provisions of the NWP allow division or district engineers to further specify authorized or prohibited discharges and/or require testing.

Based upon Subparts B and G, after consideration of Subparts C through F, the discharges authorized by this NWP will not cause or contribute to significant degradation of waters of the United States.

6.1.4 Factual determinations (40 CFR 230.11)

The factual determinations required in 40 CFR 230.11 are discussed in section 6.2.3 of this document.

6.1.5 Appropriate and practicable steps to minimize potential adverse impacts (40 CFR 230.10(d))

As demonstrated by the information in this document, as well as the terms, conditions, and provisions of this NWP, actions to minimize adverse effects (Subpart H) have been thoroughly considered and incorporated into the NWP. General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. Compensatory mitigation may be required by the district engineer to ensure that the net adverse effects on the aquatic environment are minimal.

6.2 Evaluation Process (40 CFR 230.7(b))

6.2.1 Description of permitted activities (40 CFR 230.7(b)(2))

As indicated by the text of this NWP in section 1.0 of this document, and the discussion of potential impacts in section 4.0, the activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization under a single general permit. Specifically, the purpose of the NWP is to authorize discharges of dredged or fill material for commercial shellfish aquaculture activities. The nature and scope of the impacts are controlled by the terms and conditions of the NWP.

The activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization by a general permit. The terms of the NWP authorize a specific category of activity (i.e., discharges of dredged or fill material for the operation of commercial shellfish aquaculture activities) in a specific category of waters (i.e., navigable waters of the United States). The restrictions imposed by the terms and conditions of this NWP will result in the authorization of activities that have similar impacts on the aquatic environment, namely the modification of aquatic habitats, such as estuarine and marine waters, through commercial shellfish aquaculture activities.

If a situation arises in which the activity requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

6.2.2 Cumulative effects (40 CFR 230.7(b)(3))

The 404(b)(1) Guidelines at 40 CFR 230.11(a) define cumulative effects as "...the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material." For the issuance of general permits, such as this NWP, the 404(b)(1) Guidelines require the permitting authority to "set forth in writing an evaluation of the potential individual and cumulative impacts of the categories of activities to be regulated under the general permit." [40 CFR 230.7(b)] If a situation arises in which cumulative effects are likely to be more than minimal and the proposed activity requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

Based on reported use of this NWP since NWP 48 was first issued in 2007 and a survey of its district offices, the Corps estimates that this NWP will be used approximately 3,200 times on a national basis, resulting in no losses of waters of the United States, including jurisdictional wetlands. Approximately 3,320 acres of navigable waters will be temporarily impacted by the authorized activities. Compensatory mitigation is not normally required for discharges of dredged or fill material associated with the operation of commercial shellfish aquaculture activities because most of the impacts that will be authorized by this NWP will be temporary. Shellfish harvesting and bed preparation activities can be considered "pulse disturbances" that have temporary effects on aquatic ecosystems, because those ecosystems will recover after those disturbances occur (Dumbauld et al. 2009). The installation of commercial shellfish aquaculture equipment in navigable waters has longer lasting effects (i.e., "press disturbances"), but such disturbances add physical habitat to the waterbody that can benefit a variety of aquatic organisms (Dumbauld et al. 2009).

The individual and cumulative adverse effects on the aquatic environment resulting from the activities authorized by this NWP will be minimal. The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP, including its limits, rather than request individual permits for projects that could result in greater adverse impacts to the aquatic environment. Division and district engineers will restrict or prohibit this NWP on a regional or case-specific basis if they determine that these activities will result in more than minimal individual and cumulative adverse effects on the aquatic environment.

6.2.3 Section 404(b)(1) Guidelines Impact Analysis, Subparts C through F

(a) Substrate: Discharges of dredged or fill material into waters of the United States will alter the substrate of those waters, usually by altering the composition of the substrate to make it more suitable for shellfish reproduction and growth. The discharges of dredged or fill material authorized by this NWP will not replace aquatic areas with dry land. There may

be changes to the physical, chemical, and biological characteristics of the substrate. The original substrate may be removed or covered by other material, such as sand or gravel.

(b) Suspended particulates/turbidity: Depending on the method of operation, including harvesting techniques, sediment control measures, equipment, composition of the bottom substrate, and wind and current conditions during these activities, there may be temporary increases in water turbidity. Pre-construction notification is required for certain activities authorized by this NWP, which will allow the district engineer to review those activities and ensure that adverse effects on the aquatic environment are minimal. Particulates will be temporarily resuspended in the water column during harvesting and other commercial shellfish aquaculture activities. The turbidity plume will normally be limited to the immediate vicinity of the disturbance and should dissipate shortly after each phase of operation. NWP activities cannot create turbidity plumes that smother important spawning areas downstream (see general condition 3).

(c) Water: Commercial shellfish aquaculture activities can affect some characteristics of water, such as water clarity, chemical content, dissolved gas concentrations, pH, and temperature. Changes in water quality can affect the species and quantities of organisms inhabiting the aquatic area, and the activities authorized by this NWP will usually have beneficial effects on water quality. Water quality certification is required for activities authorized by this NWP that involve discharges of dredged or fill material into waters of the United States, which will ensure that the activities do not violate applicable water quality standards. Permittees may be required to implement water quality management measures, including best management practices, to ensure that the authorized activities do not result in more than minimal degradation of water quality.

(d) Current patterns and water circulation: Activities authorized by this NWP will have minor adverse effects on the movement of water in the aquatic environment. Certain activities authorized by this NWP require pre-construction notification to the district engineer, which will help ensure that adverse effects to current patterns and water circulation are minimal. General condition 9 requires the authorized activity to be designed to withstand expected high flows and to maintain the course, condition, capacity, and location of open waters to the maximum extent practicable.

(e) Normal water level fluctuations: The activities authorized by this NWP will not adversely affect normal patterns of water level fluctuations due to tides and flooding, since it authorizes only commercial shellfish aquaculture activities, which occur in open waters and do not replace aquatic areas with dry land. General condition 9 requires the permittee to maintain the pre-construction course, condition, capacity, and location of open waters, to the maximum extent practicable.

(f) Salinity gradients: The activities authorized by this NWP will have not have adverse effects on salinity gradients, since commercial shellfish aquaculture activities utilize existing waters and do not change salinity.

(g) Threatened and endangered species: The Corps believes that the procedures currently in place result in proper coordination under Section 7 of the Endangered Species Act (ESA) and ensure that activities authorized by this NWP will not jeopardize the continued existence or any listed threatened and endangered species or result in the destruction or adverse modification of critical habitat. The Corps also believes that current local procedures in Corps districts are effective in ensuring compliance with ESA.

Under general condition 18, no activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

Each activity authorized by an NWP is subject to general condition 18, which states that "[n]o activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species." In addition, general condition 18 explicitly states that the NWP does not authorize the taking of threatened or endangered species, which will ensure that permittees do not mistake the NWP authorization as a Federal authorization to take threatened or endangered species. General condition 18 also requires a non-federal permittee to submit a pre-construction notification to the district engineer if any listed 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. This general condition also states that, in such cases, non-federal permittees shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized.

Under the current Corps regulations (33 CFR 325.2(b)(5)), the district engineer must review all permit applications for potential impacts on threatened and endangered species or critical habitat. For the NWP program, this review occurs when the district engineer evaluates the pre-construction notification or request for verification. Based on the evaluation of all available information, the district engineer will initiate consultation with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS), as appropriate, if he or she determines that the proposed 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 for the proposed activity and initiate consultation through the individual permit process. 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.

Corps districts have, in most cases, established informal or formal procedures with local offices of the USFWS and NMFS, through which the agencies share information regarding

threatened and endangered species and their critical habitat. This information helps district engineers determine if a proposed activity may affect listed species or their critical habitat and, if necessary, initiate ESA consultation. Corps districts may utilize maps or databases that identify locations of populations of threatened and endangered species and their critical habitat. Where necessary, regional conditions are added to NWPs to require pre-construction notification for activities that occur in known locations of threatened and endangered species or critical habitat. For activities that require agency coordination during the pre-construction notification process, the USFWS and NMFS will review the proposed activities for potential impacts to threatened and endangered species and their critical habitat. Any information provided by local maps and databases and any comments received during the pre-construction notification review process will be used by the district engineer to make a "no effect" or "may affect" decision.

Based on the safeguards discussed above, especially general condition 18 and the NWP regulations at 33 CFR 330.4(f), the Corps has determined that the activities authorized by this NWP will not jeopardize the continued existence of any listed threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. Although the Corps continues to believe that these procedures ensure compliance with the ESA, the Corps has taken some steps to provide further assurance. Corps district offices meet with local representatives of the USFWS and NMFS to establish or modify existing procedures, where necessary, to ensure that the Corps has the latest information regarding the existence and location of any threatened or endangered species or their critical habitat. Corps districts can also establish, through local procedures or other means, additional safeguards that ensure compliance with the ESA. Through formal consultation under Section 7 of the Endangered Species Act, or through other coordination with the USFWS and/or the NMFS, as appropriate, the Corps will establish procedures to ensure that the NWP will not jeopardize any threatened and endangered species or result in the destruction or adverse modification of designated critical habitat. Such procedures may result in the development of regional conditions added to the NWP by the division engineer, or in special conditions to be added to an NWP authorization by the district engineer.

(h) Fish, crustaceans, molluscs, and other aquatic organisms in the food web. Certain activities authorized by this NWP require pre-construction notification to the district engineer, which will allow review of those activities to ensure that adverse effects to fish and other aquatic organisms in the food web are minimal. Fish and other motile animals may avoid the project site while aquaculture activities such as transplantation and harvesting are conducted. Sessile or slow-moving animals in the path of discharges of dredged or fill material and aquaculture equipment may be destroyed. Some aquatic animals may be smothered by the placement of fill material. Some aquatic organisms will inhabit the physical structure created by equipment used for commercial shellfish aquaculture activities (Dumbauld et al. 2009). Motile animals will return to those areas that are temporarily impacted by the activity and restored or allowed to revert back to pre-construction conditions. Shellfish production will increase as a result of the activities authorized by this NWP.

Division and district engineers can place conditions on this NWP to prohibit discharges during important stages of the life cycles of certain aquatic organisms. Such time of year restrictions can prevent adverse effects to these aquatic organisms during reproduction and development periods. General conditions 3 and 5 address protection of spawning areas and shellfish beds, respectively. General condition 3 states that activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. In addition, general condition 3 also prohibits activities that result in the physical destruction of important spawning areas. General condition 5 prohibits activities in areas of concentrated shellfish populations, except for activities authorized by NWPs 4 and 48.

(i) Other wildlife: Activities authorized by this NWP will result in negligible adverse effects on other wildlife associated with aquatic ecosystems, such as resident and transient fish, since the NWP authorizes only commercial shellfish aquaculture activities. This NWP does not authorize activities that jeopardize the continued existence of Federally-listed endangered and threatened species or result in the destruction or adverse modification of critical habitat. General condition 4 states that activities in breeding areas for migratory birds must be avoided to the maximum extent practicable.

(j) Special aquatic sites: The potential impacts to specific special aquatic sites are discussed below:

(1) Sanctuaries and refuges: The activities authorized by this NWP will have minimal adverse effects on waters of the United States within sanctuaries or refuges designated by Federal or state laws or local ordinances. District engineers will exercise discretionary authority and require individual permits for specific activities in waters of the United States in sanctuaries and refuges if those activities will result in more than minimal adverse effects on the aquatic environment.

(2) Wetlands: The activities authorized by this NWP will have minimal adverse effects on wetlands, since these activities occur primarily in open waters. District engineers will review those NWP activities that require pre-construction notification to ensure that the adverse effects on the aquatic environment are minimal. Division engineers can regionally condition this NWP to restrict or prohibit its use in certain high value wetlands. See paragraph (e) of section 5.1 for a more detailed discussion of impacts to wetlands.

(3) Mud flats: The activities authorized by this NWP will have minimal adverse effects on mud flats, since the NWP authorizes only commercial shellfish aquaculture activities and those activities will usually only have temporary impacts on mud flats.

(4) Vegetated shallows: The activities authorized by this NWP will have minimal adverse effects on vegetated shallows. Pre-construction notification is required if the activities authorized by the NWP involve dredge harvesting, tilling, or harrowing in areas inhabited by submerged aquatic vegetation. New commercial shellfish aquaculture activities authorized by this NWP cannot directly affect more than 1/2-acre of submerged aquatic vegetation. District engineers will review pre-construction notifications to determine if those

activities will result in minimal adverse effects on the aquatic environment. If the vegetated shallows are high value and the proposed activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit. The presence of suspension feeding bivalve shellfish in estuarine and marine waters has been shown to help improve the productivity of species of submerged aquatic vegetation in those waters (e.g., Peterson and Heck 2001). Filter feeding bivalves remove suspended particles and plankton from the water column and often release nutrients to sediments, which may help increase seagrass production (Dumbauld et al. 2009).

(5) Coral reefs: The activities authorized by this NWP will have minimal adverse effects on coral reefs. Division engineers may add regional conditions to this NWP if there is potential for the activities authorized by this NWP to have direct or indirect impacts on coral reefs.

(6) Riffle and pool complexes: The activities authorized by this NWP will have little or no adverse effects on riffle and pool complexes, since it is limited to commercial shellfish aquaculture activities in navigable waters.

(k) Municipal and private water supplies: See paragraph (n) of section 5.1 for a discussion of potential impacts to water supplies.

(l) Recreational and commercial fisheries, including essential fish habitat: The activities authorized by this NWP will have minor adverse effects on waters of the United States that act as habitat for populations of economically important fish and shellfish species, since it authorizes commercial shellfish aquaculture activities. The activities authorized by this NWP will increase populations of shellfish in navigable waters, which will provide ecological functions and services associated with those organisms. Division and district engineers can condition this NWP to prohibit discharges during important life cycle stages, such as spawning or development periods, of economically valuable fish and shellfish. Compliance with general conditions 3 and 5 will ensure that the authorized activities do not adversely affect important spawning areas or concentrated shellfish populations. As discussed in paragraph (g) of section 5.1, there are procedures to help ensure that individual and cumulative impacts to essential fish habitat are minimal. For example, division and district engineers can impose regional and special conditions to ensure that activities authorized by this NWP will result in minimal adverse effects on essential fish habitat.

(m) Water-related recreation: See paragraph (m) of section 5.1 above.

(n) Aesthetics: See paragraph (c) of section 5.1 above.

(o) Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar areas: This NWP can be used to authorize activities in parks, national and historical monuments, national seashores, wilderness areas, and research sites if there are commercial shellfish aquaculture activities are authorized in those areas through leases,

permits, treaties, or other legal instrument that establishes an enforceable property interest for the operator, and those activities result in minimal adverse effects on the aquatic environment. Division engineers can regionally condition the NWP to prohibit its use in designated areas, such as national wildlife refuges or wilderness areas.

7.0 Determinations

7.1 Finding of No Significant Impact

Based on the information in this document, the Corps has determined that the issuance of this NWP will not have a significant impact on the quality of the human environment. Therefore, the preparation of an Environmental Impact Statement is not required.

7.2 Public Interest Determination

In accordance with the requirements of 33 CFR 320.4, the Corps has determined, based on the information in this document, that the issuance of this NWP is not contrary to the public interest.

7.3 Section 404(b)(1) Guidelines Compliance

This NWP has been evaluated for compliance with the 404(b)(1) Guidelines, including Subparts C through G. Based on the information in this document, the Corps has determined that the discharges authorized by this NWP comply with the 404(b)(1) Guidelines, with the inclusion of appropriate and practicable conditions, including mitigation, necessary to minimize adverse effects on affected aquatic ecosystems. The activities authorized by this NWP will result in minimal individual and cumulative adverse effects on the aquatic environment.

7.4 Section 176(c) of the Clean Air Act General Conformity Rule Review

This NWP has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities authorized by this permit will not exceed de minimis levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be

practicably controlled by the Corps. For these reasons, a conformity determination is not required for this NWP.

FOR THE COMMANDER

Dated:

13 FEB 2012

Michael J. Walsh
Major General, US Army
Deputy Commanding General
for Civil and Emergency Operations

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