

# Alaska District Compensatory Mitigation Thought Process

---



**Revised by:**

Shannon Johnson – South Branch, Chief  
Greg Mazer – Senior Project Manager, North  
Emily Vullo – Senior Project Manager, South  
Ellen Lyons – North Central Section, Chief  
Swade Hammond – Program Manager  
Bryan Herczeg – Happily Retired

## Table of Contents

Introduction.....	3
Section 1: What is Compensatory Mitigation?.....	4
Section 2: Determining When to Require Compensatory Mitigation.....	4
A. Compensatory Mitigation Regulations and Guidance.....	4
i. Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (33 CFR §230) .....	5
ii. Nationwide Permit (NWP) Program (40 CFR §330).....	5
iii. Individual Permits (33 CFR §325).....	5
B. General Policies for Evaluating Permit Applications (33 CFR §320.4).....	6
C. Compensatory Mitigation for Losses of Aquatic Resources (33 CFR §332).....	7
D. Alaska-specific guidance .....	7
E. Consideration Factors for Requiring Mitigation in Alaska.....	7
i. Type and Extent of Impacts to WOTUS .....	7
ii. Watershed Context .....	8
iii. Alaska-specific considerations .....	9
Section 3: Determining the Nature and Extent of Compensatory Mitigation.....	11
A. Methods and Mechanisms.....	11
B. Debits and Credits.....	13
C. Consideration Factors for Reviewing Compensatory Mitigation Plans .....	13
i. Similarity of functions lost with those to be provided .....	14
ii. Importance of certain functions and services within the watershed.....	15
iii. Location of the compensation site relative to the impact site.....	15
iv. Temporal losses of aquatic function.....	16
v. Long term sustainability.....	16
vi. Financial Assurance.....	17
Section 4: Recap and Documenting the Decision.....	18
References.....	20
Appendix A: Steps to Determine Mitigation Requirements .....	21

## Introduction

Adverse impacts to waters of the United States (WOTUS) that result from activities authorized under Section 404 of the Clean Water Act (33 U.S.C. 1344) may require compensatory mitigation. In rare cases, we may require compensatory mitigation under Sections 9 or 10 of the Rivers and Harbors Act (33 U.S.C. §§ 401, 403). The Regulatory Division of the U.S. Army Corps of Engineers is responsible for determining the need for compensatory mitigation on a case-by-case basis during the permit review process. The Compensatory Mitigation for Losses of Aquatic Resources regulation (33 CFR § 332), other supporting regulations, and guidance offer flexibility with mitigation requirements. Flexibility is crucial in Alaska because of widespread wetlands and other waters with relatively high ecological integrity, and few opportunities for compensation. The purpose of this document is to provide Regulatory Division, Alaska District project managers the tools necessary to determine: 1) whether project impacts should require compensatory mitigation, 2) what types of compensatory mitigation are appropriate and practicable, and 3) how best to document decisions regarding compensatory mitigation, in compliance with the regulations and existing guidance.

## Section 1: What is Compensatory Mitigation?

Compensatory mitigation as defined in 33 CFR 332.2 is “the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.” The objective of compensatory mitigation is to offset environmental losses resulting from discharges of dredged or fill material into waters of the United States. Compensatory mitigation requirements of permit decisions and verifications must be established in accordance with 33 CFR §320.4(r) and 33 CFR §332). Compensatory mitigation must be directly related to the impacts of the authorized activity, appropriate to the degree and scope of those impacts, and reasonably enforceable (Regulatory SOP 2009). The goal of compensatory mitigation is to offset aquatic resource functions and services lost because of permitted activities. Compensatory mitigation may also be required to satisfy program requirements during after-the-fact permitting procedures for violations, to ensure the project is not contrary to the public interest (33 CFR 320.4(r)).

The Section 404(b)(1) Guidelines (40 CFR §230) require that the permit applicant take all appropriate and practicable steps to mitigate proposed impacts according to the following sequence: avoidance, minimization, compensation. The applicant must first avoid and minimize impacts to WOTUS to the maximum extent practicable (33 CFR 332.1(c)(2)). Avoidance means constructing a project in a manner that would not result in a discharge of fill into WOTUS. For example, instead of abutments constructed below ordinary high water, a bridge could be constructed to completely span the river, avoiding direct impacts. Minimization means modifying project scope or size to reduce the direct and indirect impacts while still allowing the project to achieve its purpose and need. Minimization may include changes in methods, materials, or timing of construction. An example of minimizing direct impacts is reducing the extent of a fill pad within wetlands whereas an example of minimizing indirect impacts is implementing erosion control practices to limit sedimentation of waters. Potential project modifications to minimize adverse project impacts should be discussed with the applicant at pre-application meetings and during application processing. Once avoidance and minimization has been appropriately demonstrated, any unavoidable permanent impacts that remain may require compensatory mitigation.

## Section 2: Determining When to Require Compensatory Mitigation

The decision whether to require compensatory mitigation is the responsibility of Regulatory project managers in consideration of the applicable regulations and guidance. This Section summarizes administrative requirements relevant to determining whether compensatory mitigation should be required. It also offers guidance specific to the Alaska District for factors to consider when making this decision.

### A. Compensatory Mitigation Regulations and Guidance

Regulations and guidance applicable to the Clean Water Act Section 404 program provide the framework for determining when compensatory mitigation is appropriate. Below is a summary

of the regulations and guidance that forms the framework. A comprehensive website containing information and links to regulations, guidance, and training resources pertinent to compensatory mitigation is available at <https://www.epa.gov/cwa-404/background-about-compensatory-mitigation-requirements-under-cwa-section-404>.

**i. Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (33 CFR §230)**

The U.S. Environmental Protection Agency (EPA) established regulations that constitute the substantive environmental criteria used in evaluating activities regulated under Section 404 of the Clean Water Act (CWA). The regulations, better known as the Section 404(b)(1) Guidelines, identify the four conditions which must be satisfied to determine that a proposed discharge of dredged or fill material may be permitted, provide guidance for appropriate and practicable steps to avoid and minimize adverse impacts to WOTUS, and establish considerations and requirements for appropriately offsetting environmental losses resulting from unavoidable impacts to WOTUS.

**ii. Nationwide Permit (NWP) Program ([40 CFR §330](#))**

As found in General Condition 23(b) of the NWPs, compensatory mitigation “will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.” General Condition 23 of the NWPs also states that mitigation is required for all wetland losses greater than 1/10th of an acre and all stream losses greater than 3/100ths of an acre. These requirements may be waived if the Corps Regulatory (also denominated as District Engineer [DE]) determines that the adverse impacts would be or are no more than minimal and provides an activity-specific waiver.

If the Corps determines that the proposed impacts are more than minimal, then the applicant must either apply for an individual permit or propose compensatory mitigation to reduce adverse impacts to minimal. The NWP regulations at 33 CFR §330.1(e)(3) allow permittees to provide compensatory mitigation to reduce the adverse effects of the proposed work to the minimal level. However, compensatory mitigation cannot be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, when associated thresholds are exceeded, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement that applies to all NWPs. If the project impacts remain no more than minimal without compensatory mitigation, the regulatory specialist can waive requirements on a case-by-case basis as mentioned above.

**iii. Individual Permits ([33 CFR §325](#))**

Proposed projects that do not fit within an existing general permit (NWP or Regional General Permit (RGP)) and would have more than minimal impacts to WOTUS and are processed as an individual permit. As required by 33 CFR §325.1(d)(7), the applicant is responsible for including a statement on how impacts would be avoided, minimized and compensated. If the applicant asserts that the impacts would be minimal, then the statement should justify this assertion and

declare that compensatory mitigation is not necessary. It is the project manager's responsibility to determine what mitigation is appropriate for the proposed project, including any compensatory mitigation. Compensatory mitigation should only be required to offset more than minimal, unavoidable adverse aquatic resource impacts that remain after all avoidance and minimization have been achieved.

The applicant must indicate whether the compensatory mitigation would be accomplished by utilizing an approved mitigation bank or in-lieu fee program, or whether it would be implemented by the applicant (permittee-responsible compensatory mitigation). At minimum, the applicant must submit a conceptual mitigation plan as part of their compensatory mitigation statement if they are proposing permittee-responsible mitigation. A detailed plan meeting all the applicable requirements of 33 CFR §332 must be submitted and approved prior to permit issuance. 40 CFR §1501.6(c) in the National Environmental Policy Act (NEPA) also states that an Environmental Assessment (EA) must include a statement of enforceable mitigation requirements, if the agency finds no significant impact based on mitigation.

## B. General Policies for Evaluating Permit Applications (33 CFR §320.4)

33 CFR §320.4(r) states that mitigation generally fits into one of three categories:

- A. project modifications to avoid and minimize impacts,
- B. compensatory mitigation required to ensure compliance with the 404(b)(1) Guidelines, and
- C. compensatory mitigation required to ensure the project is not contrary to the public interest.

33 CFR §320.4 includes the regulations directing the Public Interest Review component of the permitting process, which involves an analysis of the foreseeable effects, both benefits and detriments, of a project's proposed impacts on 21 public interest factors (e.g., economics, flood hazards, floodplain values, etc.). While economic impacts are considered in this analysis, attention must also be given to the services provided by aquatic ecosystems including flood storage, fish and wildlife support, recreation, and water quality maintenance. Further, comparison of economic and ecological values is notoriously difficult, and ecological valuation techniques remain imprecise.

Per 33 CFR §320.4(r)(2) and §325.4(a)(3), compensatory mitigation must be required for resource losses that are more than minimal, specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment. Also, all mitigation will be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts, and reasonably enforceable. Further, 33 CFR 320.4(b) indicates that certain wetlands should not be altered "unless the benefits of the proposed alteration outweigh the damage."

## C. Compensatory Mitigation for Losses of Aquatic Resources (33 CFR §332)

33 CFR §332, the regulations that embody the Mitigation Rule, explains the different forms of compensatory mitigation and the considerations that must be made once it has been determined that compensatory mitigation is required. The Mitigation Rule established a set of standards by which all forms of compensation must satisfy; the standards were based on scientific understanding, public participation, and innovative market-based tools. The main purposes of the Mitigation Rule were to elevate the efficiency and predictability of the mitigation process and facilitate achievement of the “no net loss” policy elucidated in Executive Order 11990. The Mitigation Rule does not provide additional guidance or requirements for when compensatory mitigation should be required. The major components of the Mitigation Rule are explained in Section 3 of this guidance.

## D. Alaska-specific guidance

Decisions regarding the type and extent of compensatory mitigation in Alaska should also consider the Alaska District Memorandum of Agreement (MOA) for mitigation signed by the EPA and the Corps on June 15, 2018. While this MOA does not dictate when compensatory mitigation should be required, it provides additional guidance regarding flexibilities that exist in the mitigation requirements for CWA Section 404 permits, and how those flexibilities can be applied in Alaska given the abundance of wetlands and unique circumstances involved with Section 404 permitting here. This guidance should be considered when determining what type of compensatory mitigation is appropriate. Guiding principles from the MOA specific to determining the appropriateness of compensatory mitigation include:

1. Restoring, establishing, or enhancing wetlands for compensatory mitigation may not be practicable due to limited availability of sites and/or technical or logistical limitations.
2. Compensatory mitigation options over a larger watershed scale may be appropriate given that compensation options are frequently limited at a smaller watershed scale.
3. Where a large proportion of land is under public ownership, compensatory mitigation opportunities may be available on public land.
4. Out-of-kind compensatory mitigation may be appropriate when it better serves the aquatic resource needs of the watershed.

## E. Consideration Factors for Requiring Mitigation in Alaska

The most challenging part of determining when compensatory mitigation should be required is deciding whether the proposed impact would constitute a significant loss to the human and/or aquatic environment. This decision must be made individually, based on the nature and extent of project impacts, relevant regulations, and guidance. Although the relevant regulations and guidance identify considerations essential to the decision-making process, they are not sufficiently specific to serve as decision-making criteria.

### i. Type and Extent of Impacts to WOTUS

“The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by DA permits.”

(33 CFR 332.3(a)). Therefore, the project manager must identify the unavoidable impacts to WOTUS; specifically, the functions and services that would be permanently lost due to the proposed project. Functions include the physical, chemical, and biological processes that occur in ecosystems. Services are benefits that the human environment receives from performance of these functions.

If necessary, the applicant may be asked to submit a functions or conditions assessment to provide a more scientific, defensible description of the wetland functions and services lost as a result of the proposed activity. Wetland functions assessment methods typically evaluate a variety of hydrologic, physicochemical, and ecological functions and some services such as flood protection, water quality maintenance, recreation, aesthetics and sustenance.

Further, Regulatory project managers should clearly identify direct, indirect and cumulative impacts to aquatic resources. Although the nature and extent of compensatory mitigation is typically driven by the nature and extent of direct impacts to aquatic resources, it may also be necessary to offset indirect or cumulative impacts if they are predicted to be more than minimal. The following are functional definitions of each impact type in the context of regulation under CWA Section 404.

**Direct Impacts** include permanently or temporarily eliminating aquatic areas (i.e., via fill placement) or result in conversion of one water type to another. If a temporary impact remains in place for an extended period, it is not temporary and should be evaluated as permanent. Project Managers should work with their Section Chiefs for this determination. The extent and nature of direct impacts may be gauged via functions or conditions assessment.

**Indirect (Secondary) Impacts** include the reduced function of waters that occurs later in time or in areas away from the site of direct impact. Although “reasonably foreseeable”, they are not as reliably quantifiable as direct impacts, partly because indirect impacts attenuate at highly variable rates with time since and distance from the direct impact.

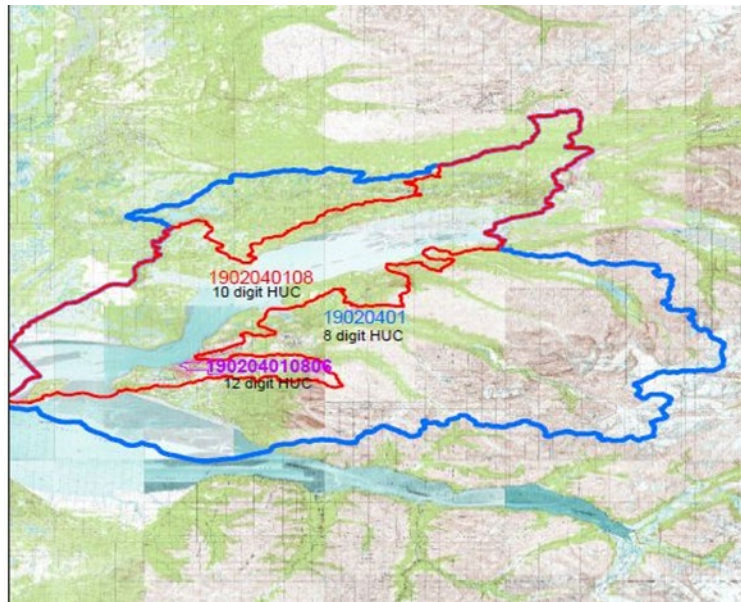
**Cumulative Impacts** involve effects of an action in combination with other human-caused effects upon a particular place and within a particular time. The 404(b)(1) Guidelines found in 40 CFR §230.11(g) state that “cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material.” NEPA regulations found at 40 CFR §1508.7 indicate that cumulative impacts result from “the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.” The cumulative impact assessment entails review of possible effects of the perceived direct and indirect impacts in the context of ongoing degradation within the surrounding watershed.

## ii. Watershed Context

Project managers must identify an appropriately sized Hydrologic Unit Code (HUC) encompassing the proposed activity for determining the extent of impacts to the surrounding watershed. This is important for assessing the proposed activity’s cumulative impacts and may be used to guide compensatory mitigation so that it more effectively offsets both ongoing and proposed impacts affecting watershed function.



The appropriate HUC scale for assessing impacts and proposed compensatory mitigation must be determined on a case-by-case basis. Typically, the HUC will either be a HUC-12 (subwatershed), HUC-10 (watershed), or HUC-8 (subbasin) (see Figure 1). Selection should be primarily predicated upon the geographic extent of project impacts, including cumulative impacts, and the homogeneity of environmental conditions including climate, topography, vegetation, artificial disturbance, etc. Thus, if no direct, indirect or cumulative impacts are anticipated to extend beyond a HUC-12, then that HUC-12 should be the area in which compensatory mitigation is completed. HUC size for evaluation is dependent upon project specific criteria including impacts, location, and surrounding development. Too small of a HUC could unfairly inflate the project impacts and too large of a HUC could unfairly dilute the magnitude of impacts. Smaller HUCs are preferred, where practicable, because most project impacts may not extend beyond the subwatershed and thus, provide an appropriate size for review. Each project warrants a case-specific determination.



### iii. Alaska-specific considerations

The decision whether to require compensatory mitigation is further complicated by the challenging conditions commonly occurring in Alaska. The Alaska District MOA recognizes that avoiding wetland impacts may not be practicable where wetlands and other waters comprise a large proportion of the surrounding watershed or region, which is a common occurrence in most regions of the state. In addition, the loss of aquatic resources in Alaska may not cause the same level of impact to watershed function as it would in places where aquatic resources are far less common. Further, the relatively pristine ecological conditions, limited extent of direct threats to aquatic resource function, and the challenging logistics of remote landscapes, rough terrain and/or underlying permafrost tend to greatly limit the potential for finding practicable means of conducting appropriate compensatory mitigation aside from preservation. The vast majority of wetlands in Alaska are peatlands (i.e., fens and bogs), which are typically very difficult to replicate due to the limited capacity to propagate native species, the difficulty of replacing organic soils, and the difficulty of restoring permafrost or seasonal frost once it has been lost or

compromised. As required by 33 CFR §332.3(a), compensatory mitigation must be practicable; thus, it cannot be required if it cannot be accomplished.

Although there are no specific criteria for deciding whether compensatory mitigation MUST be required, the Alaska District has identified certain criteria for determining when serious consideration should be given to requiring compensatory mitigation. These criteria correspond to capacity of and opportunity for aquatic resources to perform important functions and services as a result of their natural condition and/or their position within a developed watershed. Note that satisfaction of one or more of these criteria should not serve as automatic triggers for requiring compensation. The Alaska-specific criteria for seriously considering compensatory mitigation are as follows:

- A. Direct impacts or indirect impacts on a larger scale to regionally rare wetlands, waters with exceptionally high performance of functions or services, and/or areas of critical habitat (i.e., Cook Inlet Beluga whale critical habitat area).
- B. Direct impacts to tidal waters or tidally influenced waters in close proximity to or overlapping with special aquatic sites, which are defined as sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes (see 40 CFR §230.40 through §230.45). Tidally influenced waters are subject to the ebb and flow of the tides although they are positioned above the mean high-water mark of tidal waters.
- C. Direct and permanent impacts to > 1/10 of an acre of wetlands and/or other waters or >3/100 of an acre of stream, AND the encompassing watershed (10-digit Hydrologic Unit Code) or subwatershed (12-digit Hydrologic Unit Code) is significantly degraded or under imminent threat of becoming significantly degraded.

Significant watershed degradation should be indicated by one or more of the following factors:

- I. waters listed as impaired by the Alaska Department of Environmental Conservation under CWA Section 303(d)
  - II. impervious surface cover of the watershed is >5 percent or the combination of impervious surface and nearly impervious surface (gravel and/or dirt roads, driveways and foundations) is >7 percent
  - III. recent (within past 25 years) or ongoing resource extraction including, but not limited to logging, mining, agriculture, and oil and gas drilling and associated infrastructure including access roads occurring across >5 percent of the watershed
- D. Direct and permanent impacts to fish-bearing waters and/or jurisdictional wetlands with continuous surface connections to such waters. A continuous surface connection is a natural or artificial feature that enables surface water conveyance between wetlands and tributaries; flows may be channelized or dispersed (i.e., sheet flow) and may be permanent, seasonal or intermittent, but not ephemeral.

## Section 3: Determining the Nature and Extent of Compensatory Mitigation

The Corps must determine the nature and extent of the compensatory mitigation to be required based on what is practicable, environmentally preferable, and capable of compensating for the aquatic resource functions that would be lost as a result of the permitted activity (33 CFR §332.3(a)(1)). The nature and extent of the proposed mitigation must be commensurate with the scale and scope of the impacts.

### A. Methods and Mechanisms

There are four methods of implementing compensatory mitigation for impacts to jurisdictional wetlands and other waters: i) restoration, which includes re-establishment and rehabilitation, ii) establishment, iii) enhancement, and iv) preservation.

- **Restoration** is the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource (e.g., wetlands, streams, estuaries, etc.). For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.
  - o **Re-establishment** is the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.
  - o **Rehabilitation** is the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function but does not result in a gain in aquatic resource area.
- **Establishment (Creation)** is the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.
- **Enhancement** is the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
- **Preservation** is the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

The methods above can be completed through the following mechanisms: i) mitigation banks, ii) In-Lieu Fee (ILF) Mitigation Programs, and iii) Permittee-Responsible Mitigation (PRM).

- **Mitigation Banks** entail a site, or suite of sites, where aquatic resources are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by Department of the Army (and other agency) permits. Typically, a mitigation bank sells mitigation credits to permittees who must compensate for authorized impacts occurring within the bank's service area. The obligation to provide compensatory mitigation is thus transferred to the Bank sponsor. Credits are units of measure (e.g., a functional or area based measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The number of credits generated by the bank is determined by quantifying the aquatic resource (wetland, estuaries, streams, rivers, and other waterbodies) function uplift and the acres restored, created, enhanced and/or preserved.
- **ILF Programs** are similar to mitigation banks in that they generate mitigation credits through the improvement and preservation of aquatic resources and sell those credits to permittees who need to compensate for their authorized impacts. Unlike banks, ILF programs can only be operated by a public agency or non-profit organization and the implementation of the mitigation projects generally occurs during and after a permittee purchases credits, not beforehand.
- **PRM** is an aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility. This includes the development of a compensatory mitigation plan with all 12 components as described in [33 CFR §332.4\(c\)](#). If a 12 components plan is not provided, the project manager should incorporate each of the missing 12 components as special conditions in their authorization. Refer to special conditions list for more information. Regulators are not responsible for the creation of compensatory mitigation plans. That responsibility falls on the applicant, regulators are only responsible for the review and approval of mitigation plans.

The Mitigation Rule (33 CFR §332) established a preference hierarchy for mitigation mechanisms ([33CFR 332.3\(b\)](#)) as follows:

1. Purchase of Mitigation Bank credits
2. Purchase of ILF Program credits
3. PRM under a watershed approach
4. On-site and/or in-kind PRM
5. Off-site and/or out-of-kind PRM

When permitted impacts occur within the service area of an approved Mitigation Bank or ILF program that has the appropriate amount and resource type of credits available, these compensatory mitigation mechanisms should be engaged. If credits from banks or ILF programs are not available, then PRM is the only option. The resource type and location for the required PRM should be determined using the principles of a watershed approach, which is discussed

below in Section 3.B. If a watershed approach is not feasible, then the siting of the PRM may be conducted in a more opportunistic manner.

Although the Mitigation Rule establishes a preference for on-site and/or in-kind mitigation, off-site and/or out-of-kind mitigation is acceptable, especially in places like Alaska where compensatory mitigation opportunities may be scarce. Off-site mitigation occurs at a location that is not within or immediately adjacent to the impact site, but within the same basin or watershed as the impact site. Out-of-kind mitigation is improvement and/or preservation of a resource of a different structural and functional type from the impacted resource.

Although the compensatory mitigation hierarchy should be followed in most cases, determining which mechanism is most appropriate must be done on a case-by-case basis. For example, if an ILF program has released credits, the preference for utilizing this mechanism should be considered equivalent to that of bank credits. If an option is proposed despite the availability of one or more higher ranking options (e.g., permittee-responsible mitigation rather than mitigation bank credits), then the proposal could only be considered if a convincing rationale explaining why the PRM is environmentally preferable is provided. Such rationale could be developed with assistance from the Corps and other agencies and should rely upon the Alaska-specific guidance outlined above and the five factors discussed below.

## B. Debits and Credits

As stated in the 404(b)(1) Guidelines (40 CFR §230.93(f)), “the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functions or conditions assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functions or condition assessment or other suitable metric is not used, a minimum one-to-one compensation ratio must be used.”

When requiring compensatory mitigation, project managers should coordinate with leadership to determine if a functional assessment method is practicable for their project or if compensatory mitigation should be completed at a minimum one-to-one acreage or linear foot ratio as mentioned above. Debits are derived from an impact site and are used to determine the number of “credits” to be purchased from a bank, in-lieu fee site and/or provided via permittee responsible mitigation. Other considerations (adjustment factors) regarding the calculation of credits may be necessary and include land use, threat, temporal loss, method of compensatory mitigation (preservation vs restoration), in-kind or out-of-kind, etc. Methodology for determining credits varies, so the project manager must refer to the individual bank or in-lieu fee instrument, Alaska District Credit Debit Methodology, and their supervisor for appropriate calculation of required mitigation credits to be purchased or established.

## C. Consideration Factors for Reviewing Compensatory Mitigation Plans

For NWPs, General Condition 32(b)(6) requires a statement of how compensatory mitigation will be completed if a project exceeds 1/10<sup>th</sup>-acre of wetland impacts or 3/100-acre loss of stream bed, or a statement as to why impacts are no more than minimal and mitigation should be waived

by the district engineer (delegated to Chiefs). Alaska RGPs may have a similar condition to NWP General Condition 32. Project managers should review each RGP on a case-specific basis to determine if mitigation conditions apply. For individual permits a mitigation statement must be provided by the applicant as part of a complete application. This mitigation statement must include a discussion of avoidance, minimization, and proposed compensatory mitigation or a statement on why compensatory mitigation should not be required.

As an alternative, components of a mitigation plan may be addressed through special conditions if no plan is submitted. These are very rare and case-specific situations. Staff must discuss these situations with their chiefs. For permittee responsible mitigation associated with an IP, a 12 components mitigation plan abiding by 33 CFR 332.4(c)(2) through (c)(14) must be submitted and approved by the Corps prior to permit issuance. General Permit verifications only require a conceptual plan at the time of verification; however, a final plan must be approved prior to commencing the regulated activity. If the 12 components are not provided or are deficient, the project manager should insert appropriately revised components as special conditions when requiring compensatory mitigation. For permittees who intend to fulfill their compensatory mitigation obligations by securing credits from approved mitigation banks or in-lieu fee programs, their mitigation plans need to include only the items described in paragraphs 33 CFR 332.4(c)(5) and (c)(6), or a statement of intent to use a mitigation bank or ILF Program.

When evaluating proposed compensatory mitigation, the Corps must consider the applicable regulatory requirements, with special attention to the mitigation mechanism hierarchy, and assess the overall benefit to aquatic resources. Further, the Corps should review the proposal with special attention to the following factors:

**i. Similarity of functions lost with those to be provided**

Compensatory mitigation should replace the suite of aquatic resource functions to be lost by the proposed project unless it is demonstrated that there are no feasible options for doing so and/or there is an opportunity to alleviate historical and/or ongoing impacts to watershed health via out-of-kind mitigation. Typically, replacement of lost aquatic resource functions is achieved by restoration, creation, enhancement and/or preservation of a resource that is similar to the impacted resource in regard to landscape position, hydrologic regime, habitat structure and functional performance.

A clear path to achieving in-kind mitigation is producing and/or sustaining aquatic resources with the same classification as those that would be eliminated by the proposed construction. For wetlands, the classification system with the strongest implications for functional performance is the Hydrogeomorphic (HGM) classification system (Brinson 1993; NRCS 2008), which separates wetlands by water source, hydrodynamics, and landscape position. The other commonly used classification system for wetlands, the Cowardin classification system (Cowardin et al. 1979), is predicated upon landscape position and ground cover type with modifications for water regime. Wetlands of the same HGM class tend to perform functions at similar levels, especially when there are similarities in habitat structure, as indicated by Cowardin class and/or the Alaska Vegetation Classification System (Vioreck et al. 1992), as well as similarities in historical and ongoing disturbances, both artificial and natural. For streams,

similarity of structure and the associated functional performance should be determined by application of the U.S. Forest Service Channel Type or the Rosgen Stream Classification System.

Assessment of functional performance to be lost by the impacted wetlands and that which would be gained by the mitigation wetlands is best achieved using a scientific, defensible, and regionally specific functions assessment such as the Wetland Ecosystem Services Protocol (WESPAK), the Alaska Wetlands Assessment Method (AKWAM), or the Wetland Functional Assessment Guidebook. Assessing functional performance using one of these methods requires more effort than classifying waters, but it enables quasi-quantitative analysis of specific functions and services and the numbers generated can be fed into the Alaska Credit Debit System or a similar system to quantify losses from impacts and gains from compensatory mitigation. In certain regions of Alaska, the Stream Quantitative Tool (SQT) may be used to determine functional performance of ‘wadeable’ streams and could serve as a guide for assessing the functionality of larger waterways. As with the wetland function assessments, this method can be used to compare proposed impacts with proposed mitigation in a more reliably scientific, defensible, and regionally specific manner.

## **ii. Importance of certain functions and services within the watershed**

A watershed approach to planning mitigation is required for ILF Programs and preferred for Mitigation Banks and PRM. The goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites. A watershed approach involves considering watershed needs for restoring or maintaining aquatic ecosystem functions and services, and how locations and types of compensatory mitigation projects would address those needs.

Where available, the watershed approach should be based on a watershed plan that describes historical and ongoing impacts and identifies opportunities to improve watershed health including through protection and restoration of aquatic resources. These plans are typically devised with involvement from a variety of stakeholders. Examples of watershed plans include special area management plans, advance identification programs and wetland management plans. Where no watershed plan is available, the watershed approach should be based on information provided by the project sponsor (permittee, bank, or in-lieu fee contact) or available from other sources. The information provided should answer the following questions:

- a. What are the historical and/or ongoing impacts to watershed health that could be addressed by restoration, creation, enhancement and/or preservation of aquatic resources?
- b. What aquatic functions are lacking or compromised within the watershed and to what extent would they be restored by the proposed mitigation?
- c. How would the local, regional and national public benefit? For instance, would enhancing and preserving a floodplain wetland reduce flood risk to nearby properties?

## **iii. Location of the compensation site relative to the impact site**

Although on-site mitigation is generally preferred over off-site mitigation, opportunities for on-site mitigation are uncommon and often come with difficulties that preclude its use or make it

less desirable than off-site mitigation. When reviewing on-site mitigation possibilities, the Corps must consider the practicability of the proposed mitigation, the capacity for offsetting the proposed functional losses, and the compatibility with the landscape changes that would result from the proposed project construction and operation.

Off-site compensatory mitigation without benefit from a watershed approach may be warranted when there is no on-site mitigation opportunities and little potential to strategically site mitigation within the watershed due to limited information and/or limited opportunities. As with any type of compensatory mitigation, off-site mitigation should only be permitted if it can adequately offset the proposed impacts or adequately offset historical or ongoing impacts within the watershed.

PRM should generally be conducted within the same subwatershed, watershed or subbasin as the proposed impact. PRM outside of these boundaries may be appropriate when suitable sites for compensation are not otherwise available and/or the applicant has identified opportunities in adjacent sub-basins or watersheds enabling in-kind mitigation. In contrast, bank and ILF credits may only be used within their defined service areas. Compensatory mitigation in Alaska and elsewhere should always occur within the same basin (6-digit Hydrologic Unit Code) as the proposed impact.

#### **iv. Temporal losses of aquatic function**

Temporal losses refer to temporary deficit in aquatic resource function caused by any delay in implementing compensatory mitigation and realizing its benefits. Typically, for ILF and PRM, there is some delay between the time when project construction eliminates or reduces aquatic resource function and the time when an equivalent amount of function is restored via compensatory mitigation. Wetland establishment generally has a greater time lag to establish certain wetland functions than most other means of compensatory mitigation. Forested systems typically require more time to establish characteristic structure and function than most herbaceous systems. In contrast, preservation of intact, highly functional wetlands and other waters provides the benefits of compensation with no (or very little) delay. Biological, physical, and chemical processes associated with nutrient cycling, hydric soil development, and community development and succession in relation to the type of compensatory mitigation should be considered when determining the magnitude of temporal loss expected from a proposed project.

#### **v. Long term sustainability**

Not only must the Corps determine whether the mitigation is technically feasible and/or practicable, we must also determine whether it could sustain the improved functional performance over the long term. Compensatory mitigation sites must be in locations where they will likely remain sufficiently protected from off-site pressures that could substantially reduce functional performance over the long term. Typically, there should be only a limited need to sustain functional performance through maintenance activities such as culvert debris clearing, non-native invasive plant removal and active patrolling to prevent squatting, vandalism, etc.

As required by 33 CFR §332.7(d), a long-term management plan must be developed that describes how the mitigation site will be managed after performance standards have been



achieved to ensure the sustainability of the resource. The long-term management plan must also describe long-term financing, identify the legal and physical property protections, and name the party responsible for protecting and managing the site.

As defined in 33 CFR 332.3(h)(2)(i), the restoration, establishment, enhancement, and/or preservation, as well as the maintenance, of buffers around aquatic resources may be necessary to ensure the long-term viability of those resources. Buffers may include uplands and/or wetlands on the drier end of the spectrum and have limited flooding potential and should be capable of protecting or enhancing the targeted functions of the other portions of the compensatory mitigation site. Buffers should serve to suppress erosion and sedimentation, sequester pollutants, and obstruct human influence or intrusion. Determination of buffer adequacy should also be contingent upon its susceptibility to natural and artificial disturbances, the potential for current and foreseeable land uses to cause disturbances, and the size and ecological integrity of the area designated as the buffer. Mitigation credit must be awarded for buffers in amounts commensurate with the estimated degree of protection provided for those upland areas determined essential for maintaining the ecological viability of the adjoining aquatic resources as stated in 33 CFR 332.3(o)(8).

Preservation of ecologically intact wetlands and/or other waters in perpetuity must meet certain criteria ([33 CFR 332.3\(h\)\(1\)](#)) to be considered for mitigation credit. Specifically, preservation as mitigation must:

1. Provide important functions for the watershed;
2. Significantly contribute to watershed sustainability;
3. Be appropriate and practicable;
3. Permanently protect aquatic resources that are under threat of destruction or adverse modifications; and
5. Be permanently protected through an appropriate real estate instrument (e.g., conservation easement or deed restriction on private land) or other legal instrument (e.g., resource management plan or multi-party agreements on public land).

To the extent appropriate and practicable, preservation should be accomplished in conjunction with aquatic resource restoration, establishment, and/or enhancement. However, preservation without implementation of other mitigation methods is generally acceptable in Alaska due to the limited availability of sites and/or technical or logistical limitations, as mentioned above.

#### **vi. Financial Assurance**

The price of mitigation bank credits and ILF credits is determined by their respective sponsors. The project applicant is financially responsible for compensatory mitigation required for the associated impacts, whether by purchasing bank or ILF credits or by bearing the cost of PRM. Regardless, the costs should be aligned with expected costs for the restoration, establishment, enhancement, and/or preservation of aquatic resources including costs for land acquisition, planning and design, construction, materials, labor, legal fees, administration, monitoring, and

remediation or adaptive management activities. Mitigation costs must also account for the resources necessary to conduct long-term management.

Financial assurances are typically necessary to instill a high level of confidence that bank, ILF and PRM projects will be successfully implemented and managed in the short term. Financial assurances guarantee that sufficient money will be available for use to complete or replace the required mitigation and meet specified ecological performance standards in the event that the mitigation provider is unable or unwilling to meet those obligations. Alternative mechanisms, such as a documented commitment from a government agency, may substitute for financial assurances with approval from the Corps as stated in 332.3 (n)(1).

The amount of the required financial assurance must be determined by the Corps, considering input from the project sponsor. The amount must be based on the size and complexity of the compensatory mitigation project, the likelihood of success, the past performance of the project sponsor, and any other factors the Corps deems appropriate. Financial assurances may be in the form of performance bonds, escrow accounts, casualty insurance, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments. Once all performance standards have been met, the financial assurance for the project is released to the sponsor. For more information, see the guidance entitled, “Implementing Financial Assurance for Mitigation Project Success” at [http://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/Financial\\_Assurance.pdf](http://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/Financial_Assurance.pdf).

Establishing a defined source of funding for long-term management of compensatory mitigation projects is also often necessary, especially for sites expected to face challenges related to structural maintenance, non-native invasive species management, trespass, and approved human activity such as hiking, fishing, etc. The project sponsor should identify anticipated costs of long-term stewardship and initiate a non-wasting fund to adequately support stewardship activities in perpetuity. Long-term stewardship costs are inherently difficult to predict and consequently are often underestimated, which elevates the risk of the mitigation site becoming degraded over time. Thus, long-term planning is essential as the amount of long-term stewardship money set aside for a property is decided during the project approval phase, and there is no mechanism to demand or request additional funds from the project sponsor after the project has transitioned to long-term management.

## **Section 4: Recap and Documenting the Decision**

In the combined decision document, project managers must provide a rationale for determining whether compensatory mitigation is required, and if it is required, the rationale for selecting the type, amount and location of the compensatory mitigation.

The combined decision document should include a concise, but informative description of those elements of the aquatic environment that would be affected by the proposed activity and why the nature and extent of the impacts warrant compensatory mitigation. As discussed in Section 2.B., project managers must document the known functions and services that exist on the site based on best available information. The anticipated direct, indirect and cumulative impacts to aquatic resources should be clearly described and evaluated for their magnitude and severity. As

appropriate, it should be explained that the project impacts are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment. Any prior evaluations, chemical and biological tests, scientific research, and experience that relate to the discharge should be incorporated into the discussion and cited.

The degree to which impacts would be avoided and minimized must also be considered. The administrative record should contain descriptions of actions that would be taken to avoid and/or minimize any potential detrimental effects from construction. The administrative record should document actions concerning the location, material, and methods of dispersion and control of the discharge and explain how these actions would reduce the impacts to the natural and human environment.

The decision to require compensatory mitigation must be documented in their appropriate sections within the Individual Permit combined decision document and the General Permit combined decision document. The requirement to conduct compensatory mitigation must be justified based upon the magnitude and severity of the impacts. Moreover, the justification must comply with the requirements of the Section 404(b)(1) Guidelines and/or the Public Interest Review for individual permits. Justification for General Permits must be provided to ensure no more than minimal impacts would occur under a NWP or RGP.

The decision document and other portions of the administrative record must also demonstrate whether the nature and extent of the proposed compensatory mitigation would appropriately and adequately offset the anticipated impacts. The rationale for the required amount and type of mitigation credits must be presented in the documentation. As appropriate, it should be explained that the compensatory mitigation is commensurate with the scope and degree of the project's adverse environmental effects. The rationale must comply with applicable regulations and guidance and should be predicated upon project impacts, the type and functional performance of aquatic resources to be lost or indirectly affected, and the anticipated ecological uplift from the proposed compensatory mitigation.

The discussion in the combined decision document must also address the hierarchy of compensatory mitigation mechanisms outlined in 33 CFR 332.3(b)(2)-(6). For projects proposing relatively extensive impacts and compensatory mitigation that does not conform to the preferred order, an analysis of other compensatory mitigation options is warranted. This analysis should explain why certain options may have been determined to not be practicable and why any practicable options were not selected.

The level of analysis and documentation should be commensurate with the level of impacts of the proposed project. Therefore, for most NWPs and IPs with relatively limited impacts, the explanation for why compensatory mitigation is needed should be very brief (i.e., generally no more than a couple paragraphs). For more complicated IPs resulting in greater impacts, the documentation would need to be more detailed.

## References

73 Fed. Reg. 19594, 19595 (Apr. 10, 2008).

33 C.F.R. § 332 (2008); 40 C.F.R. § 230 (2008).

June 15, 2018. “Memorandum of Agreement between The Department of the Army and The Environmental Protection Agency concerning Mitigation Sequence for Wetlands in Alaska under Section 404 of the Clean Water Act”.

USACE. 2016. Alaska District: Credit Debit Methodology, Version 1.0. US Army Corps of Engineers, Alaska District. SPN-2016-00187\_21Sep2016.

**Compensating for Wetland Losses Under the Clean Water Act**, Committee on Mitigating Wetland Losses, Board on Environmental Studies and Toxicology, Water Science and Technology Board, National Research Council ISBN: 0-309-50290-X, 348 pages, (2001).

### **United States Geological Survey Water Resources of the United States,**

<http://water.usgs.gov/GIS/huc.html>

Brinson, M.M. 1993. A hydrogeomorphic classification for wetlands, Technical Report WRP–DE–4, U.S. Army Corps of Engineers Engineer Waterways Experiment Station, Vicksburg, MS. <http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde4.pdf>

Cowardin, L.M., V. Carter, F.C. Golet., and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior. U.S. Fish and Wildlife Service. Office of Biological Services. Washington, D.C.

[http://www.fws.gov/nwi/Pubs\\_Reports/Class\\_Manual/class\\_titlepg.htm](http://www.fws.gov/nwi/Pubs_Reports/Class_Manual/class_titlepg.htm)

NRCS (Natural Resources Conservation Service). 2008. Hydrogeomorphic Wetland Classification System: An Overview and Modification to Better Meet the Needs of the Natural Resources Conservation Service. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=18537.wba#:~:text=The%20HGM%20classification%20system%20was,result%20of%20the%20HGM%20conditions.

Viereck, L.A., C.T. Dyrness, A.R. Batten, and K.J. Wenzlick. 1992. The Alaska Vegetation Classification. PNW-GTR-286. United States Department of Agriculture. U.S. Forest Service. Pacific Northwest Research Station. Portland, Oregon. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.geobotany.uaf.edu/library/pubs/ViereckLA1992\_USFS\_PNWGTR286.pdf

## Appendix A: Steps to Determine Mitigation Requirements

### A. Potential Permitting Scenarios

Below are the three potential permitting scenarios regarding compensatory mitigation and the actions that must be taken by the applicant and by the Corps regulator.

1. The proposed project does not require compensatory mitigation beyond avoidance and minimization:
  - a. The regulator must review, modify (as appropriate), and document avoidance and minimization measures;
  - b. The applicant must provide rationale as to why they are not proposing compensatory mitigation for their proposed project; and
  - c. In the decision document (and possibly in a memorandum for record), the Corps regulator must document acceptance of avoidance and minimization measures and rationale for not requiring compensatory mitigation.
2. The proposed project requires compensatory mitigation, but the applicant does not propose any:
  - a. The regulator must review, modify (as appropriate), and document avoidance and minimization measures.
  - b. When completing the individual permit process, the Public Notice must state that no compensatory mitigation has been proposed and the applicant's rationale for not proposing any.
  - c. When reviewing the application, the Corps regulator must inform the applicant that compensatory mitigation is warranted and required. The regulator should also inform the applicant about existing Mitigation Bank and/or ILF credits and/or any potential off-site opportunities for conducting PRM.
  - d. If the applicant proposes PRM during the permit review process, they must submit a compensatory mitigation plan. The regulator must review it to determine whether it complies with 33 CFR §332. The regulator should also determine whether Mitigation Bank or ILF Program credits, or potentially other PRM opportunities, are available and more appropriate as compensatory mitigation.
  - e. As mentioned in Section 3.C., for general permits, components of a mitigation plan may be addressed through permit conditions if no plan is submitted (see 33 CFR 332.4(c)(ii)).
  - f. In the decision document the project manager must document acceptance of avoidance and minimization measures and rationale for requiring the type and amount of compensatory mitigation. Regulators are not responsible for the creation of

compensatory mitigation plans. That responsibility falls on the applicant, regulators are only responsible for the review and approval of compensatory mitigation plans.

3. The proposed project is submitted with a mitigation statement proposing compensatory mitigation:
  - a. The regulator must review, modify (as appropriate), and document avoidance and minimization measures.
  - b. The regulator must review the mitigation proposal for adequacy in light of applicable regulations and guidance. If inadequate, the regulator must work with the applicant to establish a compensatory mitigation plan that meets the requirements of 33 CFR §332.
  - c. For permittees who intend to fulfill their compensatory mitigation obligations by securing credits from approved mitigation banks or in-lieu fee programs, their mitigation plans need to include only the items described in paragraphs 33 CFR 332.4(c)(5) and (c)(6), and either a statement of intent to use a Mitigation Bank or ILF Program or the name of the specific Mitigation Bank or ILF Program to be used.
  - d. If the applicant proposes PRM, then they must submit a compensatory mitigation plan and the regulator must review it to determine whether it meets the requirements of 33 CFR §332. The regulator should also determine whether Mitigation Bank or ILF Program credits, or potentially other PRM opportunities, are available and more appropriate as compensatory mitigation.
  - e. In the decision document the project manager must document acceptance of avoidance and minimization measures and rationale for requiring the type and amount of compensatory mitigation. Regulators are not responsible for the creation of compensatory mitigation plans. That responsibility falls on the applicant, regulators are only responsible for the review and approval of mitigation plans.