DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898
JBER, ALASKA 99506-0898

REPLY TO ATTENTION OF:

CEPOA-RD-P

3 March 2011

MEMORANDUM FOR Regulatory Division

SUBJECT: Mitigation Team Guidance on Compensatory Mitigation

1. The attached guidance provides the Mitigation Team's recommendations regarding when compensatory mitigation is likely to be required in Alaska.

2. The Mitigation Team recommendations supplement the 25 February 2009, Alaska District Regulatory Guidance Letter RGL 09-01.

3. Every project must be reviewed on a case-by-case basis and compensatory mitigation requirements are determined during the permit evaluation process for each project. In all cases, avoidance and minimization to the extent practicable will occur prior to compensatory mitigation.

Encl

GLEN E. JUSTIS
Chief, Policy and Administration Branch

AK DISTRICT MITIGATION TEAM RECOMMENDATIONS REGARDING COMPENSATORY MITIGATION

Compensatory mitigation will likely be required when:

1) The project occurs in, rare, difficult to replace, or threatened wetlands, areas of critical habitat, etc.

2) The project permanently impacts more than 1/10 of an acre of wetlands and/or other waters of the U.S. and the watershed condition is such that compensatory mitigation is necessary to offset the project's unavoidable adverse effects. Situations that can indicate degradation of the watershed's aquatic environment can include, but is not limited to, more than 5% of impervious surface[1] in the watershed, waters listed as impaired or CWA Section 303(d) listed waterbodies[2], etc.

3) Fill placed in intertidal waters associated with special aquatic sites[3].

4) Fill placed in fish bearing waters and jurisdictional wetlands within 500' of such waters when impacts are determined more than minimal.

5) The project is federally funded, so compensatory mitigation is required under Executive Order 11990 and meets the National policy goal of no net loss of wetlands.

6) Large scale projects with significant aquatic resource impacts (ex. mining development; highway, airport, pipeline, and railroad construction projects). [33 CFR 320.4(r)(2)]

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[1] Impervious surface is defined as areas of the earth that have been covered by any material that impedes the infiltration of water into the soil. Areas of land covered by pavement or buildings are impervious to rain water. Concrete, asphalt, rooftops and even severely compacted areas of soil are considered impervious.

[2] Alaska Dept. of Environmental Conservation - Alaska's List of Impaired or 303(d) Listed Waterbodies
http://dec.alaska.gov/water/wqsar/waterbody/integratedreport.htm

[3] 40 CFR 230 Subpart E, Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs and riffle pool complexes
http://water.epa.gov/lawsregs/rulesregs/cwa/upload/CWA_Section404b1_Guidelines_40CFR230_July2010.pdf

U.S. Army Corps
of Engineers
Alaska District

Alaska District Regulatory Guidance Letter

RGL ID No. 09-01

CEPOA-RD 2009

SUBJECT: Alaska District implementation of the Federal Rule on Compensatory Mitigation: Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (33 CFR Parts 325 and 332), dated April 10, 2008.

BACKGROUND: The Corps and EPA published a new rule to clarify how to provide compensatory mitigation for unavoidable impacts to the nation's wetlands and streams resulting from authorized activities. The rule is intended to enable the agencies to promote greater consistency, predictability, and ecological success of mitigation projects under the Clean Water Act.

The rule preserves the requirement for applicants to first avoid and/or minimize impacts to aquatic resources before proposing compensatory mitigation to offset project impacts. The rule establishes performance standards, sets timeframes for decision making, and to the extent possible, establishes equivalent requirements and standards for the three sources of compensatory mitigation: mitigation banks, in-lieu-fee (ILF) programs, and permittee-responsible mitigation.

PURPOSE: The purpose of this Regulatory Guidance Letter (RGL) is to define the Alaska District's review procedure for compensatory mitigation with respect to the requirements of the rule. This RGL outlines the steps necessary to implement the rule when evaluating project proposals, and identifies the necessary documentation to be included in the administrative record for a permit decision.

APPLICABILITY: This guidance applies to all permit applications submitted for approval.

IMPACTS, COMPENSATION AND WATERSHEDS: Regulations require appropriate and practicable compensatory mitigation to replace functional losses to aquatic resources. The Alaska District will determine what level of mitigation is "appropriate" based upon the functions lost or adversely affected by permitted activities. When determining "practicability", the District will consider the availability of suitable locations, constructability, overall costs, technical requirements, and logistics.

The rule includes flexibility concerning regional variations in aquatic resources, determination of watershed size and limits, in-lieu-fee and mitigation bank service areas, and the types of wetland projects. For reference, Table 1 provides cited portions from the rule that are particularly relevant to aquatic resource impacts and compensatory mitigation in Alaska.

PROCEDURES: The following are flow chart procedures for evaluating mitigation proposals that accompany permit requests.

A. Receipt of Application

1. Review permit request (applies to all permit requests)

   a. The application does not contain any information pertaining to mitigation sequencing and compensation for impacts (incomplete application or Pre-Construction Notification). Request this information from the applicant.

   OR

b. The application contains the required mitigation statement, documents mitigation sequencing (avoidance, minimization, then compensation), and has a conceptual mitigation plan, if necessary. Proceed to Section B.

B. Determination of Mitigation Requirements for all Permit Requests

Mitigation requirements are determined by following 33 CFR 320.4(r). It is critical to document your evaluation process, whether you require compensatory mitigation or not, by following the sequencing outlined in the regulations above and taking into consideration the nation's "no net loss" goal (see Executive Order 11990 and the February 6, 1990, Memorandum of Agreement between the Department of the Army and the Environmental Protection Agency). See Table 2 for examples of projects that ***will*** *require compensatory mitigation and* ***may*** *or* ***may not*** *require compensatory mitigation.*

1. The proposed project does not require compensatory mitigation beyond avoidance and minimization:

   a. The applicant must 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 (i.e., memorandum for record (MFR), combined decision document, etc.), regulator must document acceptance of avoidance and minimization measures and rationale for not requiring compensatory mitigation.

OR

2. The proposed project requires compensatory mitigation, but the applicant does not think so, nor propose any:

   a. The applicant must document avoidance and minimization measures; and
   b. The Public Notice (PN) or General Permit Agency Coordination (GPAC) mitigation statement will state that no compensatory mitigation has been proposed and the applicant's rationale for not proposing any. Items the regulator should discuss with the applicant during the review period would be: Is there opportunity on-site for compensatory mitigation? If so, is it ecologically preferable and practicable (e.g. will it be self-sustaining, low risk, temporal losses, etc.). Is the proposed project within a service area for an established bank or ILF program? Are there compensatory mitigation opportunities within the impacting project's watershed/ecoregion, which might be applicable and/or of which the applicant is unaware?
   c. Proceed to Section C.

OR

3. The proposed project is submitted with a compensatory mitigation plan:

   a. The applicant must document avoidance and minimization measures;
   b. Review the plan for adequacy, as outlined in Section C;
   c. If inadequate, work with the applicant to get the plan refined until it is adequate; and
   d. Proceed to Section C.

C. Reviewing Compensatory Mitigation Plans and General Considerations

If compensatory mitigation is required for general permits (regional or nationwide permits), you may approve a conceptual or detailed compensatory mitigation plan to meet required time frames for general permit verifications, but a final mitigation plan (as described in Section D) must be approved before work commences in waters of the U.S. Alternatively, components of a mitigation plan may be addressed through permit conditions (see 33 CFR § 332.4(c)(ii)). Do not forget to ensure project is in compliance with NWP general condition 20, if applicable.

1. Is the mitigation site located on private or public lands? Credits for compensatory mitigation projects on public land must be based solely on aquatic resource functions provided by the compensatory mitigation project, over and above those provided by public programs already planned or in place.

2. Is mitigation proposed in-kind or out-of-kind? On-site or off-site? The decision document needs to include ecological rationale for out-of-kind. Very rarely can you justify a marine impact being compensated at a fresh-

water site but the opposite may be able to easily justify. If off-site, can all impacted functions be mitigated at an off-site location? If not, how is the applicant addressing water quality and quantity functions on-site?

3. What option has the applicant determined would be environmentally preferable and why (e.g. in-kind, out-of kind, temporal concerns, etc.)?

   a. If mitigation bank credits – go to item (i) below
   b. If ILF program credits – go to item (ii) below
   c. If permittee-responsible mitigation – go to item (iii) below

      i. Mitigation bank credits
         1) The applicant must provide a rationale for using a mitigation bank (why the bank is an environmentally preferable compensation choice);
         2) Confirm that the impact occurs in the service area of the mitigation bank and that credits are available;
         3) Baseline information and determination of credits as described in D. 4. and D. 5. below; and
         4) In the decision document (i.e., MFR, combined decision document, etc.), Regulator must document acceptance of avoidance and minimization measures and rationale for compensatory mitigation requirements.

      ii. In-lieu fee program credits
         1) The applicant must provide a rationale for using an in-lieu fee (why the in-lieu fee is an environmentally preferable compensation choice);
         2) Confirm that the impact occurs in the Service Area of the in-lieu fee sponsor's program;
         3) Baseline Information and Determination of Credits as described in D. 4. and D. 5. below; and
         4) In decision document (i.e., MFR, Combined Decision Document, etc.), the regulator must document acceptance of avoidance and minimization measures and rationale for compensatory mitigation requirements.

      iii. Permittee-responsible mitigation
         1) Type of compensatory mitigation
            a) Preservation only (go to Section E)
            b) Restoration, establishment, enhancement (go to Section D)
            c) Stream compensatory mitigation projects (go to Section D)
         2) Was a functional assessment provided for the impacted area, and was it related to the proposed compensatory mitigation? See Appendix A (Wetland Functions Information and Tools)
         3) Was the functional assessment an approved methodology or is it based upon best professional judgment? See item 4.
         4) Does the functional assessment adequately describe the impacts to all wetland functions – water quantity; water quality; habitat? Do you agree with the conclusions of the assessment?
         5) Overall, is the wetland being impacted of high, medium, or low functions and services (Category I – IV – see Appendix A)?
         6) Has the applicant or consultant included wetland and upland buffer impacts?
         7) Are there indirect and/or secondary adverse affects from the project?
         8) The regulator must document findings and rationale of items 2-7 above to support their conclusions.

D. Final Mitigation Plan Requirements for Permittee-Responsible Mitigation (33 CFR 332.4(c)(2) through (c)(14))

1. Objectives:
   a. method of compensation (restoration, establishment, enhancement and/or preservation);
   b. description of resource types (i.e., U.S. Fish and Wildlife Service Cowardin Class – PFO, PSS, PEM, riverine, lacustrine, etc. and/or Hydrogeomorphic (HGM) Class: Depressional, Riverine, Slope, or Flats) provided by plan (see Appendix A);

c. the amount of each resource type provided by plan; and
d. does the compensation project address the needs of the watershed, ecoregion, or other geographic area of interest?

2. Site Selection:
   a. will the compensation project be self-sustaining;
   b. did the applicant consider on-site alternatives where practicable; and
   c. were watershed needs considered by applicant?

3. Site Protection Instrument:
   a. what legal arrangements and instrument is the applicant proposing to ensure long-term protection of the mitigation site:
      i. Conservation Easement
      ii. Restrictive Covenant/Deed Restriction – See examples in O:\RD\Private\Library\Mitigation

4. Baseline Information:

For applicants planning on securing credits from an ILF program or mitigation bank, baseline information only needs to be submitted for the impact site, not the ILF or mitigation bank project site.

Baseline information includes the following for both the impact site and the mitigation project site (if applicable). The list may not be inclusive of other information that may be needed on a case-by-case basis.

   a. descriptions of historic and existing plant communities and hydrology (including any monitoring well data);
   b. soil conditions (including any soil boring data);
   c. a map showing the locations of the impact and mitigation site(s) or the geographic coordinates; and
   d. delineation of waters of the U.S. (in accordance with the 1987 wetland delineation manual and the 2007 Alaska Regional Supplement) for both the impact and mitigation project site

5. Determination of Credits (See Appendix B):

A description of the number of credits to be provided, including a brief explanation of the rationale for this determination. (See Section 332.3(f).)

   a. For permittee-responsible mitigation, this should include an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity; and
   b. For permittees intending to secure credits from an approved mitigation bank or in-lieu fee program, it should include the number and resource type of credits to be secured and how these were determined.

Example – DO NOT USE MONETARY CONVERSIONS – that is between the ILF or bank sponsor and the applicant!!! Using Appendix B: If the impact is 5 acres of moderate functioning wetland (Category II or III) and the applicant proposes preservation (either as an ILF or Mitigation Bank) as their compensatory mitigation type, then according to the ratio table, the applicant would need to compensate at a 2:1 ratio, which would translate to 10 credits (or acres) of preservation. The price for purchasing 10 credits from an ILF or bank sponsor will be determined by the sponsor, NOT by the Corps.

6. Mitigation Work Plan:

The applicant needs to include the following details (using all available information, but not limited to):

For Wetland Projects
   a. geographic boundaries of the project;
   b. construction methods, timing, and sequence;
   c. source(s) of water, including connections to existing waters and uplands;
   d. methods for establishing the desired plant community (including plant species, number of individuals and spacing – e.g. trees will be planted 10-foot on center);
   e. plans to control invasive plant species; proposed grading plan, including elevations and slopes of substrate;
   f. soil management; and
   g. erosion control measures

For Stream Projects - includes the above list, plus:

h. planform geometry;
i. channel form (e.g. typical channel cross-sections);
j. watershed size;
k. design discharge; and
l. riparian area planting plan (including species, number of individuals, and spacing)

7. Maintenance Plan:
   a. description and schedule of maintenance requirements once initial construction is completed

8. Performance Standards (See Appendix C for examples):
   a. used to determine whether the project is achieving objectives – must be meaningful, measurable and achievable, as well as enforceable;
   b. must be objective and verifiable;
   c. may be based on variables or measures of functional capacity described in functional assessment methodologies, measurements of hydrology or other aquatic resource characteristics, and/or comparisons to reference aquatic resources of similar type and landscape position.

9. Monitoring Requirements:
   a. applicant should submit a description of parameters to be monitored in order to determine if the mitigation project is on track to meet performance standards and if adaptive management is needed – includes parameters to be monitored, the length of the monitoring period, party responsible for monitoring and submittal of reports, the frequency for submittal of reports; and
   b. content and detail is commensurate with scale and scope of mitigation project

10. Long-term Management Plan:
    a. how will mitigation project be managed to ensure long-term sustainability of the resource;
    b. party responsible for ownership and all long-term management of the mitigation project;
    c. long-term management responsibilities can be transferred to another entity, such as a public agency, non-governmental organization, or private land manager (District Engineer (DE) must approve);
    d. should include description of long-term management needs, annual cost estimates for these needs, and funding mechanism that will be used to meet those needs;
    e. financing mechanisms include: non-wasting endowments, trusts, contractual arrangements with future responsible parties and other appropriate financial instruments; and
    f. public authority or government agency responsible for long-term management, must include plan for long-term financing of the mitigation site

11. Adaptive Management Plan:
    a. includes a strategy to address unforeseen changes in site conditions or other components of the mitigation project;
    b. must include party responsible for implementing adaptive management measures;
    c. adaptive management measures may include: site modification, design changes, revisions to maintenance requirements, and revised monitoring requirements

12. Financial Assurances:
    a. need to assess whether financial assurance is required;
    b. government agencies or public authorities with a formal documented commitment do not need to post financial assurances;
    c. is another regulatory entity requiring financial assurances;
    d. amount is based on the size and complexity of the mitigation project, likelihood of success, past performance of project sponsor, the degree of completion of the project at the time of project approval
    e. 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
    f. rationale for determining the amount of the required financial assurances, or not requiring any, must be documented in the administrative record

E. Required Criteria for using ONLY Preservation as Compensatory Mitigation (33 CFR 332.3(h))

If proposed preservation meets the following criteria, proceed to Section D. for final mitigation plan requirements

1. The resources to be preserved provide important physical, chemical, or biological functions for the watershed;

2. The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate tools, where available;
3. Preservation is determined by the DE to be appropriate and practicable;
4. The resources are under threat of destruction or adverse modifications; and
5. The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).

F. Tables and Appendices

The tables and appendices were compiled using multiple resources and are to be utilized as tools and resources to assist in the regulator's evaluation. The regulator may choose to use the functional assessment tools together, separately, or not at all. Every project needs to be evaluated based on its own merit, and the tools are generalizations that may need adjusting or further analysis, which should be determined by the regulator on a case-by-case basis.

Table 1: Citations from the new rule (preamble and the regulations) that are of particular value to Alaska
Table 2: Examples of projects that will require compensatory mitigation and examples of projects that may or may not require compensatory mitigation

Appendix A: Functional Assessment Information and Tools
Appendix B: Sample Ratios for Compensatory Mitigation
Appendix C: Performance Standards
Appendix D: Glossary

2/25/09
Date

Michael Rabke
Chief, Regulatory Division

Table 1. Citations from the new rule (preamble and the regulations) that are of particular value to Alaska

Page 19617 (332.3(a) - Flexibility in Mitigation Requirements): Flexibility in compensatory mitigation requirements is needed to account for regional variations in aquatic resources, as well as state and local laws and regulations. There also needs to be flexibility regarding the requirements for permittee-responsible mitigation. Practicability is an important consideration when determining compensatory mitigation requirements.
Page 19625-19626 (332.2 - Definitions for Watershed and Service Area): District engineers will determine appropriate watershed scales for compensatory mitigation projects, including services areas for mitigation banks and in-lieu fee programs.... In general, compensatory mitigation projects should be located in the same watershed as the permitted impacts, at a scale determined to be appropriate by the district engineer based on the factors specified in the rule.
Page 19627 (332.3(a) - Mitigation Options & Practicability): If a particular compensatory mitigation project is cost-prohibitive, then an alternative compensation project that is more practicable should be required. District engineers will also consider impacts to the public interest, including potential losses of aquatic resource functions and services, when evaluating permit applications and compensatory mitigation proposals, and determining appropriate and practicable compensatory mitigation requirements.
Page 19627 (332.3(a) – Environmentally Preferable Mitigation): [The regs] provide flexibility for district engineers to make compensatory mitigation decisions based on what is environmentally preferable and is most likely to successfully provide the required compensatory mitigation.
Page 19627 (332.3(c) - Watershed Approach & DE Flexibility): [The regs] provide flexibility for district engineers to use innovative approaches or strategies for determining more effective compensatory mitigation requirements that provide greater benefits for the aquatic environment.
Page 19632 (332.3(b)(6) - Out-of-kind Mitigation): District engineers can require the use of out-of-kind compensatory mitigation when he or she determines that it will serve the aquatic resource needs of the watershed.
Page 19635 (332.3(h) - Preservation as Compensatory Mitigation): Preservation will be provided in conjunction with aquatic resource restoration, establishment, and/or enhancement activities, unless the district engineer waives this requirement in a situation where preservation has been identified as a high priority using a watershed approach. If the district engineer makes such a waiver, a higher compensation ratio shall be required.
Page 19654 (332.8(d)(6)(ii)(A) - Bank Service Area): The district engineer, in consultation with the IRT, will determine the appropriate service area(s) for mitigation banks and in-lieu fee programs.
Page 19660 (332.8(o)(6) - Credits Provided by Preservation): Preservation may also be used as the only form of compensatory mitigation, at the discretion of the district engineer, but this should only be allowed where preservation of specific resources has been identified as a high priority using a watershed approach...

Table 2. Examples of projects that will require compensatory mitigation and examples of projects that may or may not require compensatory mitigation

Notes:
1. These are examples. Every project must be reviewed on a case-by-case basis and compensatory mitigation requirements must be determined through the permit review process for each project.
2. This table assumes that avoidance and minimization has occurred for the project to the PM/RS's satisfaction, and been documented. The decision whether to require compensatory mitigation must also be well documented in the administrative record.
3. This table does not mean that impacts considered small for purposes of ILF or Mitigation Bank credit would never require another form of compensatory mitigation.

WILL REQUIRE
The project occurs in degraded, rare, difficult to replace, or threatened wetlands, areas of critical habitat, 303(d) waters, etc.
The project, even if minimally impacting, occurs in a watershed where cumulative impacts are a concern (i.e., urban areas, transportation corridors, etc.)
Fill placed in intertidal waters associated with special aquatic sites, streams, rivers, lakes and/or riparian areas.
Fill placed in anadromous fish streams and wetlands adjacent to anadromous fish streams.
The project is federally funded, so compensatory mitigation is required under Executive Order 11990 (no net loss of wetlands).
MAY OR MAY NOT REQUIRE
The impacting project requires an IP or permanently impacts more than ½ acre of wetlands and/or other waters of the U.S.
The impacts from the project are so small (e.g. loss of 1/2 acre of forested wetlands in a remote, relatively undisturbed watershed) that they cannot be effectively compensated
There is no opportunity within the watershed for compensatory mitigation AND the impacts are so small that an ILF or Bank Sponsor could not sell a credit that would be worth the money to process (cost/benefit analysis does not add up)
The project impacts are minimal or in a watershed with large expanses of wetlands that are not at risk of being cumulatively degraded.

Appendix A

WETLAND FUNCTIONS AND SERVICES FORM

*****This is an example. Best professional judgment should be used on each specific site*****

Helpful when evaluating permittee-responsible mitigation to determine which functions are being lost; therefore, these functions should be replaced in the applicant's mitigation proposal

File #:_____ Assessed by:_____

Cowardin Class:_____ Wetland Size:_____ Date:_____

Function/Service	Occurrence Y	Occurrence N	Rationale	Comments
Flood Flow Alteration				
Sediment Removal				
Nutrient & Toxicant Removal				
Erosion Control & Shoreline Stabilization				
Production of Organic Matter and its Export				
General Habitat Suitability				
General Fish Habitat				
Native Plant Richness				
Educational or Scientific Value				
Uniqueness and Heritage				

NOTE: The function/services that are to be lost with the project are the functions/services that should be replaced.

SUMMARY OF POTENTIAL FUNCTIONS FOR HGM CLASS WETLANDS

*****This is an example. Best professional judgment should be used on each specific site*****

Common definitions of HGM Classification Types:

Riverine - Riverine wetlands occur in floodplains and riparian corridors in association with stream or river channels. They lie in the active floodplain and have important hydrologic links to the water dynamics of the river or stream. The distinguishing characteristic of Riverine wetlands is that they are frequently flooded by overbank flow from the stream or river. Flood waters are a major factor that structures the ecosystem in these wetlands. Wetlands that lie in floodplains but are **not** frequently flooded are not classified as Riverine.

Depressional - Depressional wetlands occur in topographic depressions. Dominant water sources are precipitation, groundwater discharge, and interflow from adjacent uplands. The direction of flow is normally from the surrounding uplands toward the center of the depression. Elevation contours are closed, thus allowing the accumulation of surface water. Depressional wetlands may have any combination of inlets and outlets or may lack them completely. Dominat hydrodynamics are vertical fluctuations, primarily seasonal. Depressional wetlands may lose water through intermittent or perennial drainage from an outlet and by evapotranspiration and, if they are not receiving groundwater discharge, may slowly contribute to groundwater.

Lacustrine Fringe - Lacustrine fringe wetlands are adjacent to lakes where the water elevation of the lake maintains the water table in the wetland. In some cases, these wetlands consist of a floating mat attached to land. Additional sources of water are precipitation and groundwater discharge, the latter dominating where lacustrine fringe wetlands intergrade with uplands or slope wetlands. Surface water flow is bidirectional, usually controlled by water-level fluctuations such as seiches in the adjoining lake.Lacustrine fringe wetlands are indistinguishable from depressional wetlands where the size of the lake becomes so small relative to fringe wetlands that the lake is incapable of stabilizing water tables. Lacustrine wetlands lose water by flow returning to the lake after flooding, by saturation surface flow, and by evapotranspiration.

Tidal Fringe - Tidal Estuarine wetlands occur along coasts and estuaries and are under the influence of the sea level. They intergrade landward with riverine wetlands where tidal current diminishes and river flow becomes the dominant water source. Additional water sources may be groundwater discharge and precipitation. The interface between the tidal fringe and riverine classes is where bidirectional flows from tides dominate over unidirectional ones controlled by floodplain slope of riverine wetlands. Because tidal fringe wetlands frequently flood and water table elevations are controlled mainly by sea surface elevation, tidal fringe wetlands seldom dry for significant periods. Tidal fringe wetlands lose water by tidal exchange, by saturated overland flow to tidal creek channels, and by evapotranspiration.

Slope - Slope Wetlands normally are found where there is a discharge of groundwater to the land surface. They normally occur on sloping land; elevation gradients may range from steep hillsides to slight slopes. Slope wetlands are usually incapable of depressional storage because they lack the necessary closed contours. Principal water sources are usually groundwater return flow and interflow from surrounding uplands as well as precipitation. Hydrodynamics are dominated by downslope unidirectional water flow. Slope wetlands can occur in nearly flat landscapes if groundwater discharge is a dominant source to the wetland surface. Slope wetlands lose water primarily by saturation subsurface and surface flows, and by evapotranspiration. Slope wetlands may develop channels, but the channels serve only to convey water away from the slope wetland.

Flats - Flats wetlands occur in topographically flat areas that are hydrologically isolated from surrounding ground or surface water. The main source of water in these wetlands is precipitation. They receive virtually no groundwater discharge. This characteristic distinguishes them from Depressional and Slope wetlands.

Description of Wetland Categories Based on Functions

*****This is an example. Best professional judgment should be used on each specific site*****

Category I – High functioning wetlands
These wetlands are the "cream of the crop." Generally, these wetlands are less common. These are wetlands that: 1) provide a life support function for threatened or endangered species that has been documented; 2) represent a high quality example of a rare wetland type; 3) are rare within a given region; or, 4) are undisturbed and contain ecological attributes that are impossible or difficult to replace within a human lifetime, if at all. Examples of the latter are mature forested wetlands that may take a century to develop, and certain bogs and fens with their special plant populations that have taken centuries to develop. The position of the wetland in the landscape plays an integral role in overall watershed health.

Category II – High to Moderate functioning wetlands
These wetlands are those that: 1) provide habitat for very sensitive or important wildlife or plants; 2) are either difficult to replace (such as bogs); or 3) provide very high functions, particularly for wildlife habitat. These wetlands may occur more commonly than Category I wetlands, but still need a high level of protection.

Category III – Moderate to low functioning wetlands
These wetlands can provide important functions and values. They can be important for a variety of wildlife species and can provide watershed protection functions depending on where they are located. Generally these wetlands will be smaller and/or less diverse in the landscape than Category II wetlands. These wetlands usually have experienced some form of degradation, but to a lesser degree than Category IV wetlands.

Category IV – Degraded and low functioning wetlands
These wetlands are the smallest, most isolated, have the least diverse vegetation, may contain invasive species, and have been degraded by humankind. These are wetlands that we should be able to replace and, in some cases, be able to improve from a habitat standpoint. These wetlands can provide important functions and values, and should to some degree be protected depending on where they are located in the watershed and the condition of that watershed (urban vs. rural). In some areas, these wetlands may be providing groundwater recharge and water pollution prevention functions and, therefore, may be more important from a local point of view. Thus, regional differences may call for a more narrow definition of this category.

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

*****This is an example. Best professional judgment should be used on each specific site*****

File #:_____ Date:_____

Wetland Name:_____ PM/RS:_____

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. 2. 3. 4. 5. 6. 7. 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. 2. 3. 4. 5. 6. 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. 2. 3. 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 6. 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 6. 7. 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 6. 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. 2. 3. 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

APPENDIX B

SAMPLE RATIOS FOR COMPENSATORY MITIGATION

Note: The ratios provided below are guidance and represent what a permit applicant should expect as a compensation requirement, thereby providing some predictability. However, a Corps regulator may deviate from this guidance. Corps regulators must make an individual determination on the compensatory mitigation ratios required for specific aquatic resource impacts to ensure that the compensation is proportionate to the proposed loss or degradation of an aquatic resource area and/or its functions.

TYPE OF COMPENSATORY MITIGATION

Impacted Wetland or Other Waters of the U.S.	Preservation	Restoration and/or Enhancement
LOW Category III or IV	1.5:1	1:1
MODERATE Category II or III	2:1	1:1
HIGH Category I or II	3:1	2:1

Assumptions and/or considerations when determining ratios:

- Impacts to ponds, lakes, rivers and streams, should be mitigated for in the HIGH category, due to their inherent high level of functions and services. Compensatory mitigation for tidal and intertidal waters can generally be parsed out by habitat type; where unvegetated (inter)tidal habitat would be compensated for in the MODERATE category, while those (inter)tidal waters associated with special aquatic sites would be compensated for in the HIGH category. Deviations from this should be well reasoned and documented (e.g., document existing site degradation and lack of specific functions/services).
- Watershed position – the compensatory mitigation site should be located in areas where the compensation can contribute to ecosystem functioning at a large scale (e.g., part of river corridors and green belt space)
- Most ratios will be greater than 1:1 because there is a risk of failure associated with many forms of compensation, there is usually a temporal loss (it may take years for a compensation site to develop wetland functions and/or structure

equivalent to the impacted wetland), and preservation and enhancement activities result in net loss of wetland acreage and/or function

- Ratios shown represent a compensatory project that is constructed or protected in perpetuity concurrent with aquatic resource impacts. If there is a time delay in constructing or securing a preservation site the ratios will increase due to temporal loss
- Preservation sites selected for compensatory mitigation will be moderate to high functioning systems that meet the criteria in 33 CFR 332.3(h)
- If using a mitigation bank, rules and ratios applicable to the individual bank should be used
- Consider indirect and/or secondary impacts. For example, impacting a small portion of the wetland (<25% on the edge) is less impact then bisecting a wetland in the middle or impacting >70% of a wetland

Example for using ratio:
An applicant proposes to impact 5 acres of moderate value wetlands and it is determined compensatory mitigation is required. The applicant wants to use an ILF for preservation. The applicant would be required to provide mitigation at a 2:1 ratio using the above table, which would result in 10 credits (acres) in preservation through the ILF sponsor.

Appendix C

Examples of performance standards that should NOT be used, rationale, and a suggested standard

Standards NOT to use	Rationale	Suggested Standard
By the end of the fifth year, there will be X-X% coverage.	This standard does not specify what type of coverage (cumulative, aerial, or relative), or what should be providing the cover (it could be non-native species). Also missing from the standard is the location (where the cover should be.)	An alternate standard would be: After 5 years, native wetland (FAC or wetter) species will provide X% aerial cover in the wetland.
X-X acres will be dominated by native forested wetland vegetation in the XXX community types.	This standard provides a range for acreage, which is good. However, specifying the exact plants that need to dominate these areas could be setting this site up for failure by not allowing natural colonization and site conditions to influence plant community composition. Also missing from this standard is a time frame, an exact location, and a clear description of the action. Multiple interpretations of the word "dominated" are possible.	Several standards may be needed. For example: 1) A minimum of X (number of) species of native shrubs or trees will be present in the wetland by the end of the monitoring period. 2) A minimum of X (number of) native, herbaceous species will be present in the wetland by the end of the monitoring period. 3) X species (same as X above)[i.e., scrub shrub, forested] will each provide at least X% aerial cover in the compensatory mitigation wetland site by the end of the X-year monitoring period.
Within 5 years vegetation will provide adequate food and habitat to support populations of species found in natural areas of compatible size.	This standard is not useful for regulatory purposes. It is not measurable. It does not identify an attribute of vegetation that would be measured, nor does it provide a quantity/status that should be reached. Also missing from the standard is a location. The time frame and action are ambiguous.	Several standards may be needed. For example: 1) By year 5 there will be X-X acres of native, palustrine emergent wetland (PEM, as defined by Cowardin et al. 1979) at the wetland mitigation site. 2) By year 5 there will be X-X acres of native, palustrine scrub-shrub wetland (PSS, as defined by Cowardin et al. 1979) at the wetland mitigation site.
In the first year of monitoring, X% of the planted species or appropriate volunteers must be present and viable.	This standard is confusing and may be hard to measure or enforce. Words like "viable" have multiple interpretations. The words "appropriate volunteers" may be subject to interpretation, also.	An alternate standard would be: Native woody species (planted or volunteer) will maintain an average stem density of X in the scrub-shrub wetland in all monitoring years.

Performance Standard	Rationale	Alternate Standard
In year 3, survival of planted vegetation will be X%.	This is ambiguous, immeasurable, and unachievable. Standards should distinguish between woody and herbaceous plantings. The survival rate of planted herbaceous species is difficult to measure (dead herbaceous planting can disappear quickly and living individuals are difficult to distinguish for many plants). For woody plantings, measuring survival at year 3 can also be difficult and does not provide a good depiction of what is on-site: natural recruitment of woody species may have occurred. It would be better to measure stem density and then aerial cover in later years.	Alternate standards for the establishment of woody vegetation could be: In year 1, survival of planted woody vegetation at the mitigation site will be 100%. Of all dead plantings are replaced, the standard will be considered met. In year 3, woody vegetation at the mitigation site will have a stem density of at least X stems/acre. In year 10, woody vegetation at the mitigation site will achieve at least X% aerial cover.
The wetland will be saturated during the growing season.	This is ambiguous, immeasurable, and unachievable.	An alternate standard could be: The compensatory mitigation site will have X-X% area that is seasonally inundated (surface water present for > 1 month, but no more than 6 months) each year of monitoring.