

STANDARD OPERATING PROCEDURE FOR DETERMINATION OF MITIGATION RATIOS *12501-SPD*

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Summary

- General details
- Checklist
- Instructions
- Examples



STANDARD OPERATING PROCEDURE FOR DETERMINATION OF MITIGATION RATIOS

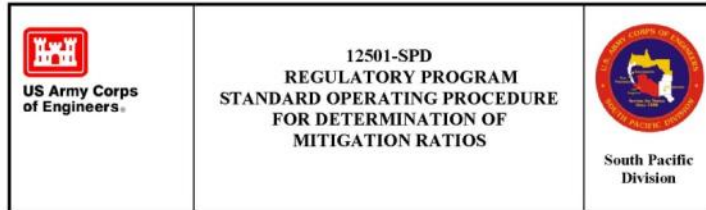


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1.0 Purpose. The purpose of this document is to outline the process for determining compensatory mitigation requirements as required for processing of Department of the Army (DA) permits under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. .

2.0 Applicability. This process applies to the Regulatory Program within South Pacific Division (SPD), including its four subordinate districts, Albuquerque District (SPA), Sacramento District (SPK), Los Angeles District (SPL), and San Francisco District (SPN). Subordinate offices or organizations shall not modify this procedure to form a specific procedure. This procedure is applicable for all permit applications received after 20 April 2011.

3.0 References.

Compensatory Mitigation for Losses of Aquatic Resources (33 C.F.R. Part 332).

Smith, R. D., D. R., A. Ammann, C. Bartoldus, M. M. Brinson. 1995. An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and

Current Approved Version: 11/30/2012. Printed copies are for "Information Only." The controlled version resides on the SPD OMS SharePoint Portal.

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Functional Indices., Wetlands Research Program Technical Report WRP-DE-9. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm> (Version 04DEC98).

Collins, J.N., E.D. Stein, M. Sutula, R. Clark, A.E. Fetscher, L. Grenier, C. Grosso, and A. Wiskind. 2008. California Rapid Assessment Method (CRAM) for Wetlands. Version 5.0.2. 151 pp.

4.0 Related Procedures.

None.

5.0 Definitions.

Compensatory mitigation - 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.

Condition - The relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

Enhancement - 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.

Establishment (creation) - 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.

Functions - The physical, chemical, and biological processes that occur in ecosystems.

Impact - Adverse effect.

In-kind - A resource of a similar structural and functional type to the impacted resource.

In-lieu fee program - A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for DA permits.

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Mitigation Ratio-Setting Procedure

- Finalized: April 20, 2011
- Current version: October 2013
- Benefits:
 - ▶ Provides structured decision-making procedure while retaining flexibility
 - ▶ Allows for qualitative or quantitative assessments of impacts & mitigation
 - ▶ Results in a written rationale (decision document) for each ratio determination
 - ▶ Includes guidance for each step (consistency)
- Incorporates use of functional/condition assessments **when available/required**



Attachment 1 (page 1)

SPD Mitigation Ratio Setting Checklist

Attachment 12501.1 - SPD Mitigation Ratio Setting Checklist

1	<p>Date: _____ Corps file no.: _____ Project Manager: _____</p> <p>Impact site name: _____ ORM impact resource type: _____ Hydrology: _____</p> <p>Impact Cowardin or HGM type: _____ Impact area (acres): _____ Impact distance (linear feet): _____</p> <table border="1" data-bbox="705 482 1800 639"> <tr> <th data-bbox="705 482 1110 511">Column A:</th><th data-bbox="1110 482 1458 511">Column B (optional):</th><th data-bbox="1458 482 1800 511">Column C (optional):</th></tr> <tr> <td data-bbox="705 511 1110 539">Mitigation site name: _____</td><td data-bbox="1110 511 1458 539">Mitigation site name: _____</td><td data-bbox="1458 511 1800 539">Mitigation site name: _____</td></tr> <tr> <td data-bbox="705 539 1110 568">Mitigation type: _____</td><td data-bbox="1110 539 1458 568">Mitigation type: _____</td><td data-bbox="1458 539 1800 568">Mitigation type: _____</td></tr> <tr> <td data-bbox="705 568 1110 596">Resource type: _____</td><td data-bbox="1110 568 1458 596">Resource type: _____</td><td data-bbox="1458 568 1800 596">Resource type: _____</td></tr> <tr> <td data-bbox="705 596 1110 625">Cowardin/HGM type: _____</td><td data-bbox="1110 596 1458 625">Cowardin/HGM type: _____</td><td data-bbox="1458 596 1800 625">Cowardin/HGM type: _____</td></tr> <tr> <td data-bbox="705 625 1110 639">Hydrology: _____</td><td data-bbox="1110 625 1458 639">Hydrology: _____</td><td data-bbox="1458 625 1800 639">Hydrology: _____</td></tr> </table>				Column A:	Column B (optional):	Column C (optional):	Mitigation site name: _____	Mitigation site name: _____	Mitigation site name: _____	Mitigation type: _____	Mitigation type: _____	Mitigation type: _____	Resource type: _____	Resource type: _____	Resource type: _____	Cowardin/HGM type: _____	Cowardin/HGM type: _____	Cowardin/HGM type: _____	Hydrology: _____	Hydrology: _____	Hydrology: _____
Column A:	Column B (optional):	Column C (optional):																				
Mitigation site name: _____	Mitigation site name: _____	Mitigation site name: _____																				
Mitigation type: _____	Mitigation type: _____	Mitigation type: _____																				
Resource type: _____	Resource type: _____	Resource type: _____																				
Cowardin/HGM type: _____	Cowardin/HGM type: _____	Cowardin/HGM type: _____																				
Hydrology: _____	Hydrology: _____	Hydrology: _____																				
2	<p>QUALITATIVE impact-mitigation comparison:</p> <p>Has a Corps-approved functional/condition assessment been obtained? If not, complete step 2; otherwise, complete step 3.</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Optional: use Table 1 (page 3).</p>	<p>Note: steps 2 and 3 are mutually exclusive. If step 2 is used, then complete the rest of the checklist (steps 4-10).</p> <p>Starting ratio: 1:1 Ratio adjustment: ____ Baseline ratio: ____:____ PM justification: _____</p>	<p>Starting ratio: 1:1 Ratio adjustment: ____ Baseline ratio: ____:____ PM justification: _____</p>	<p>Starting ratio: 1:1 Ratio adjustment: ____ Baseline ratio: ____:____ PM justification: _____</p>																		
3	<p>QUANTITATIVE impact-mitigation comparison:</p> <p>Use step 3 if a Corps-approved functional/condition assessment has been obtained.</p> <p>Use Before-After-Mitigation-Impact (BAMI) spreadsheet (attachment 12501.4) (if a district-approved functional/condition method is not available, use step 2 instead). See example in attachment 12501.2.</p>	<p>Note: steps 2 and 3 are mutually exclusive. If step 3 is used, steps 3 and 5 may also be mutually exclusive. If a functional/condition assessment method is used that explicitly accounts for area (such as HGM), steps 3 and 5 are mutually exclusive; however, if a method is used that does *not* explicitly account for area (such as CRAM), then both steps should be used. Complete the rest of the checklist (steps 4-10 or steps 4 and 6-10, as appropriate).</p> <p>Baseline ratio from BAMI procedure (attached): ____:____</p>	<p>Baseline ratio from BAMI procedure (attached): ____:____</p>	<p>Baseline ratio from BAMI procedure (attached): ____:____</p>																		
4	<p>Mitigation site location:</p>	<p>Ratio adjustment: _____ PM justification: _____</p>	<p>Ratio adjustment: _____ PM justification: _____</p>	<p>Ratio adjustment: _____ PM justification: _____</p>																		

Attachment 1 (page 2)

SPD Mitigation Ratio Setting Checklist

5	Net loss of aquatic resource surface area:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
6	Type conversion:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
7	Risk and uncertainty:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
8	Temporal loss:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
9	Final mitigation ratio(s):	<p>Column A:</p> <p>1. Baseline ratio from step 2 or 3 = ____ : ____</p> <p>2. Total adjustments = ____</p> <p>3. Final ratio: ____ : ____</p> <p>Proposed impact (total): ____ acre ____ linear feet to Resource type: _____ Cowardin or HGM: _____ Hydrology: _____</p> <p>Required mitigation: ____ acre ____ linear feet of Mitigation type: _____ Resource type: _____ Cowardin or HGM: _____ Hydrology: _____</p> <p>Additional PM comments:</p>	<p>Column B:</p> <p>1. Baseline ratio from step 2 or 3 = ____ : ____</p> <p>2. Total adjustments = ____</p> <p>3. Final ratio: ____ : ____</p> <p>Remaining impact: _____</p> <p>Required mitigation: ____ acre ____ linear feet of Mitigation type: _____ Resource type: _____ Cowardin or HGM: _____ Hydrology: _____</p> <p>Additional PM comments:</p>	<p>Column C:</p> <p>1. Baseline ratio from step 2 or 3 = ____ : ____</p> <p>2. Total adjustments = ____</p> <p>3. Final ratio: ____ : ____</p> <p>Remaining impact: _____</p> <p>Required mitigation: ____ acre ____ linear feet of Mitigation type: _____ Resource type: _____ Cowardin or HGM: _____ Hydrology: _____</p> <p>Additional PM comments:</p>
10	Final compensatory mitigation requirements:	PM summary:		

Checklist Step 1

1	Date: _____ Corps file no.: _____ Project Manager: _____		
	Impact site name: _____ ORM impact resource type: _____ Hydrology: _____		
	Impact Cowardin or HGM type: _____ Impact area (acres): _____ Impact distance (linear feet): _____		
	Column A:	Column B (optional):	Column C (optional):
	Mitigation site name: _____	Mitigation site name: _____	Mitigation site name: _____
	Mitigation type: _____	Mitigation type: _____	Mitigation type: _____
	Resource type: _____	Resource type: _____	Resource type: _____
	Cowardin/HGM type: _____	Cowardin/HGM type: _____	Cowardin/HGM type: _____
	Hydrology: _____	Hydrology: _____	Hydrology: _____

- One checklist per impact site or resource type
- Start with mitigation option A → B → C
- Alternatives (Columns):
 - ▶ A only (1 mitigation proposal)
 - ▶ A and B... (multiple mitigation proposals)
 - ▶ A vs B (compare two proposals)



Checklist Step 2

2	QUALITATIVE impact-mitigation comparison: Has a Corps-approved functional/condition assessment been obtained? If not, complete step 2; otherwise, complete step 3. Yes <input type="checkbox"/> No <input type="checkbox"/> Optional: use Table 1 (page 3).	Note: steps 2 and 3 are mutually exclusive. If step 2 is used, then complete the rest of the checklist (steps 4-10). Starting ratio: 1:1 Ratio adjustment: ____ Baseline ratio: ____:____ PM justification:	Starting ratio: 1:1 Ratio adjustment: ____ Baseline ratio: ____:____ PM justification:
---	---	---	---

- Starting Ratio 1:1
- 1:1 +/- adjustment = baseline ratio
- Details in PM Justification (BPJ)
- Table is a guide
- Range = -2 to 4

Function	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		
Step 2 adjustment:		

Checklist Step 3

3	<p>QUANTITATIVE impact-mitigation comparison:</p> <p>Use step 3 if a Corps-approved functional/condition assessment has been obtained.</p> <p>Use Before-After-Mitigation-Impact (BAMI) spreadsheet (attachment 12501.4) (if a district-approved functional/condition method is not available, use step 2 instead). See example in attachment 12501.2.</p>	<p>Note: steps 2 and 3 are mutually exclusive. If step 3 is used, steps 3 and 5 may also be mutually exclusive. If a functional/condition assessment method is used that explicitly accounts for area (such as HGM), steps 3 and 5 are mutually exclusive; however, if a method is used that does <i>*not*</i> explicitly account for area (such as CRAM), then both steps should be used. Complete the rest of the checklist (steps 4-10 or steps 4 and 6-10, as appropriate).</p> <p>Baseline ratio from BAMI procedure (attached): __:__</p>	<p>Baseline ratio from BAMI procedure (attached): __:__</p>	<p>Baseline ratio from BAMI procedure (attached): __:__</p>
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- Either Step 2 **or** Step 3
- Determination that a functional/condition assessment is appropriate
- Complete BAMI spreadsheet



BAMI Spreadsheet

Step 3

Before-After-Mitigation-Impact (BAMI)
procedure

(CRAM example)

Functions/conditions	Impact _{Before}	Impact _{After}	Impact _{delta}	Mitigation _{Before}	Mitigation _{After}	Mitigation _{delta}
4.1 Buffer and Landscape Context						
4.1.1 Landscape Connectivity	9	3	-6	6	6	0
4.1.2 Percent of AA with Buffer	12	6	-6	3	9	6
4.1.3 Average Buffer Width	3	3	0	3	12	9
4.1.4 Buffer Condition	6	6	0	3	9	6
RAW SCORE	15.0	8.0	-7	9.0	15.7	7
FINAL SCORE	62.5	33.6	-29	37.5	65.3	28
4.2 Attribute 2: Hydrology						
4.2.1 Water Source	6	6	0	6	6	0
4.2.2 Hydroperiod or Channel Stability	9	12	3	3	9	6
4.2.3 Hydrologic Connectivity	12	9	-3	3	12	9
RAW SCORE	27.0	27.0	0	12.0	27.0	15
FINAL SCORE	75.0	75.0	0	33.4	75.0	42
4.3 Attribute 3: Physical Structure						
4.3.1 Structural Patch Richness	6	3	-3	3	9	6
4.3.2 Topographic Complexity	6	3	-3	3	6	3
RAW SCORE	12.0	6.0	-6	6.0	15.0	9
FINAL SCORE	50.0	25.0	-25	25.0	62.5	38
4.4 Attribute 4: Biotic Structure						
4.4.1 Number of Plant Layers	12	9	-3	6	9	3
4.4.2 Co-Dominant Species	6	6	0	6	12	6
4.4.3 Percent Invasion	6	9	3	3	12	9
4.4.4 Interspersion/Zonation	9	3	-6	3	9	6
4.4.5 Vertical Structure	6	3	-3	3	6	3
RAW SCORE	23	14	-9	11	26	15
FINAL SCORE	63.9	38.9	-25	30.6	72.3	42
OVERALL SCORE	65.0	46.0	-19	32.0	70.0	38

Quotient=
ABS(MI)_{delta}
2

Baseline ratio:
1 : 2

Checklist Steps 4 & 5

4	Mitigation site location:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
5	Net loss of aquatic resource surface area:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:

- Step 4
 - ▶ Define “watershed”
 - ▶ Inside of watershed = 0, outside of watershed = +1
- Step 5
 - ▶ Re-establishment or establishment = 0
 - ▶ Rehabilitation, enhancement, or preservation = +1



Checklist Steps 6 & 7

6	Type conversion:	Ratio adjustment: PMjustification:	Ratio adjustment: PMjustification:	Ratio adjustment: PMjustification:
7	Risk and uncertainty:	Ratio adjustment: PMjustification:	Ratio adjustment: PMjustification:	Ratio adjustment: PMjustification:

- Step 6
 - ▶ From Rare to Common = +0.25 to + 4.0
 - ▶ From common to rare = -0.25 to -4.0
 - ▶ Similar = 0
- Step 7
 - ▶ Analyze several factors – Permittee-responsible, difficult to replace, modified hydrology, long-term maintenance, long-term preservation, etc...
 - ▶ Adjustment ranges +0.1 to +0.3



Checklist Step 8

8	Temporal loss:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
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- Known scheduled delays
 - ▶ Multiply number of months by 0.05
- Full Replacement of functions
 - ▶ Trees/woodlands or saltmarsh = +3
 - ▶ Shrubs = +2
 - ▶ Herbaceous = +1



Checklist Steps 9 & 10

9	Final mitigation ratio(s):	<p>Column A:</p> <p>1. Baseline ratio from 2 or 3: ____:____</p> <p>2. Total adjustments (4-8): ____</p> <p>3. Final ratio: ____:____</p> <p>Proposed impact (total): ____ acres ____ linear feet</p> <p>To Resource type: ____</p> <p>Cowardin or HGM: ____</p> <p>Hydrology: ____</p> <p>Required mitigation: ____ acres ____ linear feet</p> <p>Of Resource type: ____</p> <p>Cowardin or HGM: ____</p> <p>Hydrology: ____</p> <p>Proposed mitigation: ____ acres ____ linear feet</p> <p>Impact Unmitigated: ____ % ____ acres</p> <p>Additional PM comments: _____</p>	<p>Column B:</p> <p>1. Baseline ratio from 2 or 3: ____:____</p> <p>2. Total adjustments (4-8): ____</p> <p>3. Final ratio: ____:____</p> <p>Proposed impact (total): ____ acres ____ linear feet</p> <p>To Resource type: ____</p> <p>Cowardin or HGM: ____</p> <p>Hydrology: ____</p> <p>Required mitigation: ____ acres ____ linear feet</p> <p>Of Resource type: ____</p> <p>Cowardin or HGM: ____</p> <p>Hydrology: ____</p> <p>Proposed mitigation: ____ acres ____ linear feet</p> <p>Impact Unmitigated: ____ % ____ acres</p> <p>Additional PM comments: _____</p>	<p>Column C:</p> <p>1. Baseline ratio from 2 or 3: ____:____</p> <p>2. Total adjustments (4-8): ____</p> <p>3. Final ratio: ____:____</p> <p>Proposed impact (total): ____ acres ____ linear feet</p> <p>To Resource type: ____</p> <p>Cowardin or HGM: ____</p> <p>Hydrology: ____</p> <p>Required mitigation: ____ acres ____ linear feet</p> <p>Of Resource type: ____</p> <p>Cowardin or HGM: ____</p> <p>Hydrology: ____</p> <p>Proposed mitigation: ____ acres ____ linear feet</p> <p>Impact Unmitigated: ____ % ____ acres</p> <p>Additional PM comments: _____</p>
10	Final compensatory mitigation requirements:	PM summary:		

- Adjustments are additive
- Minimum 1:1 ratio unless a function/condition assessment is used
- Describe final mitigation in step 10



Attachment 3

Examples of Mitigation Ratio Setting Checklist

Attachment 12501.3-SPD - Examples for SPD Mitigation Ratio Setting Checklist

We'll go through example #1.

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Attachment 3

Example 1 (overview)

Checklist Example 1: One impact site/type with two mitigation sites/types

Impact(s): The applicant is proposing to permanently impact 0.3 acre (870 linear feet) of intermittent stream with mature, native riparian vegetation (southern willow woodland).

Proposed mitigation: The applicant has proposed to mitigate through: 1) 0.3 acre of on-site, in-kind establishment of intermittent stream by re-aligning the existing stream such that the new alignment would be constructed across existing uplands (prior to grading to reduce elevations appropriately); and 2) 0.6 acre of off-site, out-of-kind enhancement of depressional wetland through a mitigation bank.

Method: The project manager has completed one checklist (see below), using column “A” for the on-site, proposed mitigation and column “B” for the off-site proposed mitigation.

Results: After completing the checklist columns “A” and “B”, and after discussing the results with the applicant, the project manager has determined the final mitigation ratios to be 4.3:1 for on-site (0.3 acre, as proposed) and 5:1 for off-site (1.15 acre of enhancement credit). As part of this process, the applicant agreed to increase his/her off-site mitigation from 0.6 acre to 1.15 acre. The project manager then entered the final requirement on the last page of the checklist and added the completed checklist to the administrative record (either as a paper copy in the paper file or as an electronic file in ORM). Alternatively, the project manager and/or applicant could have proposed all on-site mitigation (1.29 acre of establishment) or all off-site mitigation (1.5 acre of enhancement) to mitigate for the proposed impact. Regardless of the outcome of any negotiations, the final mitigation ratio(s) and requirement(s) should be explicitly described in steps 9 and 10 of the checklist.



Attachment 3: Example 1 (steps 1-2)

SPD mitigation ratio setting checklist

1	Date: <u>5/17/2010</u> Corps file no.: <u>2010-XYZ</u> Project Manager: <u>John Doe</u> Impact site name: <u>Tullay Creek</u> ORM impact resource type: <u>stream</u> Hydrology: <u>intermittent</u> Impact Cowardin or HGM type: <u>riverine</u> Impact area (acres): <u>0.3</u> Impact distance (linear feet): <u>870</u>					
		Column A: Mitigation site name: <u>Tullay Creek</u> Mitigation type: <u>establishment</u> Resource type: <u>stream</u> Cowardin/HGM type: <u>riverine</u> Hydrology: <u>intermittent</u>	Column B (optional): Mitigation site name: <u>WL bank</u> Mitigation type: <u>enhancement</u> Resource type: <u>non-tidal WL</u> Cowardin/HGM type: <u>palustrine</u> Hydrology: <u>saturated</u>	Column C (optional): Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____ Hydrology: _____		
2	QUALITATIVE impact-mitigation comparison: Has a Corps-approved functional/condition assessment been obtained? If not, complete step 2; otherwise, complete step 3. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Note: steps 2 and 3 are mutually exclusive. If step 2 is used, then complete the rest of the checklist (steps 4-10). <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> Starting ratio: 1:1 Ratio adjustment: <u>0</u> Baseline ratio: <u>1:1</u> PM justification: <u>impact and mitigation are within the same water body, habitat type, etc., so functional gain and loss would be equal.</u> </td> <td style="vertical-align: top; width: 50%;"> Starting ratio: 1:1 Ratio adjustment: <u>+3</u> Baseline ratio: <u>4:1</u> PM justification: <u>Functional loss is greater than functional gain since in this case, there is total functional loss and only gain of selected functions via enhancement.</u> </td> </tr> </table>			Starting ratio: 1:1 Ratio adjustment: <u>0</u> Baseline ratio: <u>1:1</u> PM justification: <u>impact and mitigation are within the same water body, habitat type, etc., so functional gain and loss would be equal.</u>	Starting ratio: 1:1 Ratio adjustment: <u>+3</u> Baseline ratio: <u>4:1</u> PM justification: <u>Functional loss is greater than functional gain since in this case, there is total functional loss and only gain of selected functions via enhancement.</u>
Starting ratio: 1:1 Ratio adjustment: <u>0</u> Baseline ratio: <u>1:1</u> PM justification: <u>impact and mitigation are within the same water body, habitat type, etc., so functional gain and loss would be equal.</u>	Starting ratio: 1:1 Ratio adjustment: <u>+3</u> Baseline ratio: <u>4:1</u> PM justification: <u>Functional loss is greater than functional gain since in this case, there is total functional loss and only gain of selected functions via enhancement.</u>					



Attachment 3: Example 1 (steps 3-7)

3	<p>QUANTITATIVE impact-mitigation comparison:</p> <p>Use step 3 if a Corps-approved functional/condition assessment been obtained. Use Before-After-Mitigation-Impact (BAMI) spreadsheet (attachment 12501.4) (if a district-approved functional/condition method is not available, use step 2 instead). See example in attachment 12501.2.</p>	<p>Note: steps 2 and 3 are mutually exclusive. If step 3 is used, steps 3 and 5 may also be mutually exclusive. If a functional/condition assessment method is used that explicitly accounts for area (such as HGM), steps 3 and 5 are mutually exclusive; however, if a method is used that does *not* explicitly account for area (such as CRAM), then both steps should be used. Complete the rest of the checklist (steps 4-10 or steps 4 and 6-10, as appropriate).</p> <p>Baseline ratio from BAMI procedure (attached): __:__</p>	<p>Baseline ratio from BAMI procedure (attached): __:__</p>	<p>Baseline ratio from BAMI procedure (attached): __:__</p>
4	Mitigation site location:	<p>Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed</p>	<p>Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed</p>	<p>Ratio adjustment: PM justification:</p>
5	Net loss of aquatic resource surface area:	<p>Ratio adjustment: 0 PM justification: establishment</p>	<p>Ratio adjustment: +1 PM justification: enhancement</p>	<p>Ratio adjustment: PM justification:</p>
6	Type conversion:	<p>Ratio adjustment: 0 PM justification: n,n: no difference between impact and mitigation types</p>	<p>Ratio adjustment: 0 PM justification: intermittent riparian (willow woodland) and depressional wetlands not substantially different in terms of relative value.</p>	<p>Ratio adjustment: PM justification:</p>
7	Risk and uncertainty:	<p>Ratio adjustment: +0.3 PM justification: +0.1 for permittee-responsible mitigation, +0.2 as mitigation site did not formerly support target aquatic resource.</p>	<p>Ratio adjustment: 0 PM justification: mitigation bank, uncertainty factors not applicable.</p>	<p>Ratio adjustment: PM justification:</p>

Attachment 3: Example 1 (steps 8-10)

8	Temporal loss:	Ratio adjustment: <u>+3</u> PM justification: a: No planned delay, impact and mitigation to be constructed simultaneously. b: Both to include mature willow canopy (trees/woodlands), +3 to account for time to achieve full functions.	Ratio adjustment: <u>0</u> PM justification: <u>bank, no delay</u>	Ratio adjustment: PM justification:
9	Final mitigation ratio(s):	<p>Column A:</p> <p>1. Baseline ratio from step 2 or 3 = <u>1 : 1</u></p> <p>2. Total adjustments = <u>+3.3</u></p> <p>3. Final ratio: <u>4.3 : 1</u></p> <p>Proposed impact (total): <u>0.3</u> acre <u>870</u> linear feet to Resource type: <u>stream</u> Cowardin or HGM: <u>riverine</u> Hydrology: <u>intermittent</u></p> <p>Required mitigation: <u>0.3*</u> acre <u>900</u> linear feet of Mitigation type: <u>establishment</u> Resource type: <u>same</u> Cowardin or HGM: <u>same</u> Hydrology: <u>intermittent</u></p> <p>Additional PM comments: *Applicant proposed alternate, off-site mitigation to account for difference between proposed (0.3 acre establishment, 1:1) and Corps assessment using checklist (1.29 acre establishment, 4.3:1). 0.99 acre of Corps assessment not met = $0.99/1.29*100 = 77\%$. 77% of impact unmitigated = 0.23 acre of impact. See column B.</p>	<p>Column B:</p> <p>1. Baseline ratio from step 2 or 3 = <u>4 : 1</u></p> <p>2. Total adjustments = <u>+1</u></p> <p>3. Final ratio: <u>5.0 : 1</u></p> <p>Remaining impact: <u>0.23</u> acre</p> <p>Required mitigation: <u>1.15</u> acre <u></u> linear feet of Mitigation type: <u>enhancement</u> Resource type: <u>non-tidal WL</u> Cowardin or HGM: <u>palustrine, depressional wetland</u> Hydrology: <u>saturated</u></p> <p>Additional PM comments: Applicant originally proposed 0.6 acre of off-site enhancement via bank. Through checklist, I've determined requirement should be 1.15 acre. Applicant has agreed to provide 1.15 acre of wetland enhancement credit at XYZ bank.</p>	<p>Column C:</p> <p>1. Baseline ratio from step 2 or 3 = <u>:</u></p> <p>2. Total adjustments = <u></u></p> <p>3. Final ratio: <u>:</u></p> <p>Remaining impact: <u></u></p> <p>Required mitigation: <u></u> acre <u></u> linear feet of Mitigation type: <u></u> Resource type: <u></u> Cowardin or HGM: <u></u> Hydrology: <u></u></p> <p>Additional PM comments:</p>
10	Final compensatory mitigation requirements:	PM summary: The final compensatory mitigation requirement for this impact site is 0.3 acre (900 linear feet) of on-site riverine-intermittent stream (realignment of Tullay Creek, mature willow woodland) and 1.15 acre of off-site enhancement of depressional wetland through the XYZ mitigation bank.		

Questions?



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