

South Pacific Division

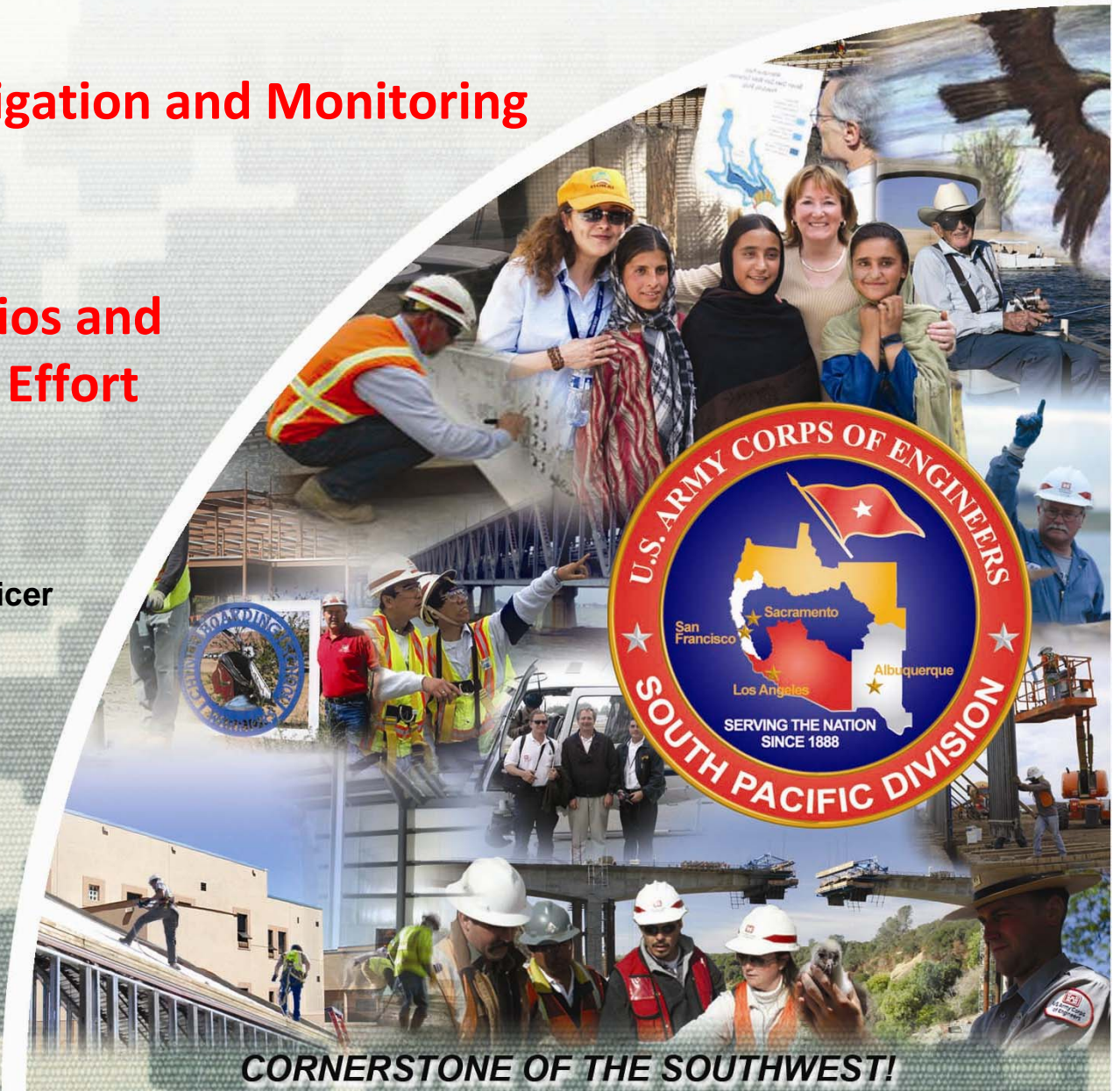
Regional Update to Mitigation and Monitoring Guidelines and Regional Mitigation Ratios and Performance Standards Effort

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US Army Corps of Engineers
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Regional Update to Corps Mitigation and Monitoring Guidelines

- **Purpose:**
 - Establish regional mitigation and monitoring policy
 - Ensure guidelines reflect 2008 joint EPA and Corps "mitigation rule" regulations
 - Make programmatic changes to improve mitigation-related procedures
- **Regional effort:**
 - Representatives from South Pacific Division (SPD) (Corps regional headquarters in California) and all four SPD districts (San Francisco (SPN), Sacramento (SPK), Albuquerque (SPA), Los Angeles (SPL))
 - Will cover Arizona, California, Nevada, Utah, New Mexico, and parts of Colorado and Texas
- **Goal: Provide consistent guidance to the regulated community and Corps Regulatory project managers throughout SPD's 4 districts.**
 - Expectations related to mitigation
 - Technical information (e.g., aquatic resource impact assessment, mitigation plan preparation, mitigation monitoring requirements and procedures)



Implementation

- **Potential Programmatic Changes:**
 - **Information management: synchronized submittal of monitoring reports**
 - **Emphasize Mitigation Ratio-setting concepts**
 - **Emphasize Expanded Performance standards**
 - **Minimum monitoring period may be expanded beyond 5 years**
 - **Map and drawing standards**
- **Estimated Timeline:**
 - **Draft expected completion summer 2011**
 - **Internal Corps coordination fall 2011**
 - **Revised draft out for formal interagency coordination winter 2011/2012**
 - **Public review winter 2011/2012**
 - **Final Implementation Spring 2012**



Mitigation Ratios and Performance Standards Effort

- **Goals:**
 - Establish regional procedure for setting mitigation ratios
 - Establish regional, uniform mitigation performance standard language
- **Non-Corps Participants:**
 - Dr. Richard Ambrose, UCLA
 - Dr. Eric Stein, SCCWRP
- **Regional effort (same as the Mitigation and Monitoring Guidelines):**
 - Representatives from SPD and all four SPD districts
 - Covers Arizona, California, Nevada, Utah, New Mexico, and parts of Colorado and Texas
- **Completion dates:**
 - Mitigation ratio-setting procedure: Finalized April 20, 2011
 - Uniform performance standards: Expected August 2011



Uniform Performance Standards

- **Benefits:**
 - Better predictability for regulated community
 - Increased ability of Regulatory agencies to ensure compliance
 - Better gauge of long-term ecological viability of mitigation sites
 - Allow improved scientific comparison between mitigation sites

- **Focus:**
 - Ecological performance standards (not water treatment)
 - Incorporation of reference sites
 - Incorporation of functional/condition assessments

- **Overall goals:**
 - **Uniform PS language**
 - ✓ General language for most
 - ✓ Targets for some
 - ✓ Different aquatic resources and ecoregions throughout four Districts

 - **Expand beyond flora-based PS**
 - ✓ Why? Flora-based PS do not represent full suite of ecological functions provided by impacted and mitigation sites



Mitigation Ratio-Setting Procedure

- **Finalized April 20, 2011**
- **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 of checklist**
 - **Greater efficiency**
- **Incorporates use of functional/condition assessments for large projects**



Mitigation Ratio-Setting Procedure

- **STANDARD OPERATING PROCEDURE FOR DETERMINATION OF MITIGATION RATIOS**
 - **1 Flowchart**
 - **4 Attachments**
 - ✓ **1. Mitigation Ratio Setting Checklist**
 - ✓ **2 . Instructions for Preparing Mitigation Ratio Checklist**
 - ✓ **3. Examples of Mitigation Ratio Setting Checklist**
 - ✓ **4. Mitigation Ratio Setting Checklist, Step 3, CRAM Example**



STANDARD OPERATING PROCEDURE FOR DETERMINATION OF MITIGATION RATIOS

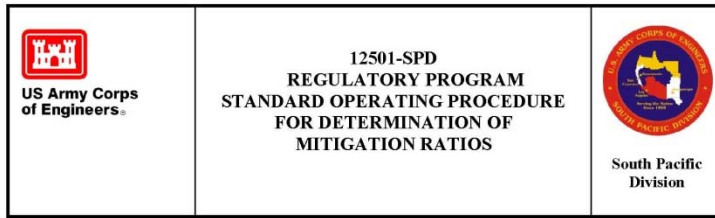


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1.0 Purpose. The purpose of this document is to outline the process for determining compensatory mitigation requirements as required for processing of Department of the Army (DA) permits under Section 404 of the Clean Water Act, Section 10 of the Rivers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

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

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subsequent mitigation and monitoring guidelines.

7.6 The final ratio must be included in the final mitigation plan, the decision document, and by special condition in the permit/final verification letter.

Note: The process outlined herein can also be used for determining compensatory mitigation requirements for unauthorized activities.

8.0 Records and Measurements.

8.1 All documents listed above will be filed in the corresponding project files in accordance with [ES-QMS140_Records Management](#).

Type	Description	Responsible Office	Location	Record Media	Retention	Disposition
R	Mitigation Ratio Checklists	Regulatory Divisions within SPD Districts/Field Offices	Project file folders in filing cabinets Regulatory Divisions within SPD Districts; Electronic Checklists in ORM Database	P/E	7 years	Send to records holding

8.2 The SPD Regulatory Program Manager and District Regulatory Division management shall periodically inspect project files to ensure compliance with this guidance.

9.0 Attachments.

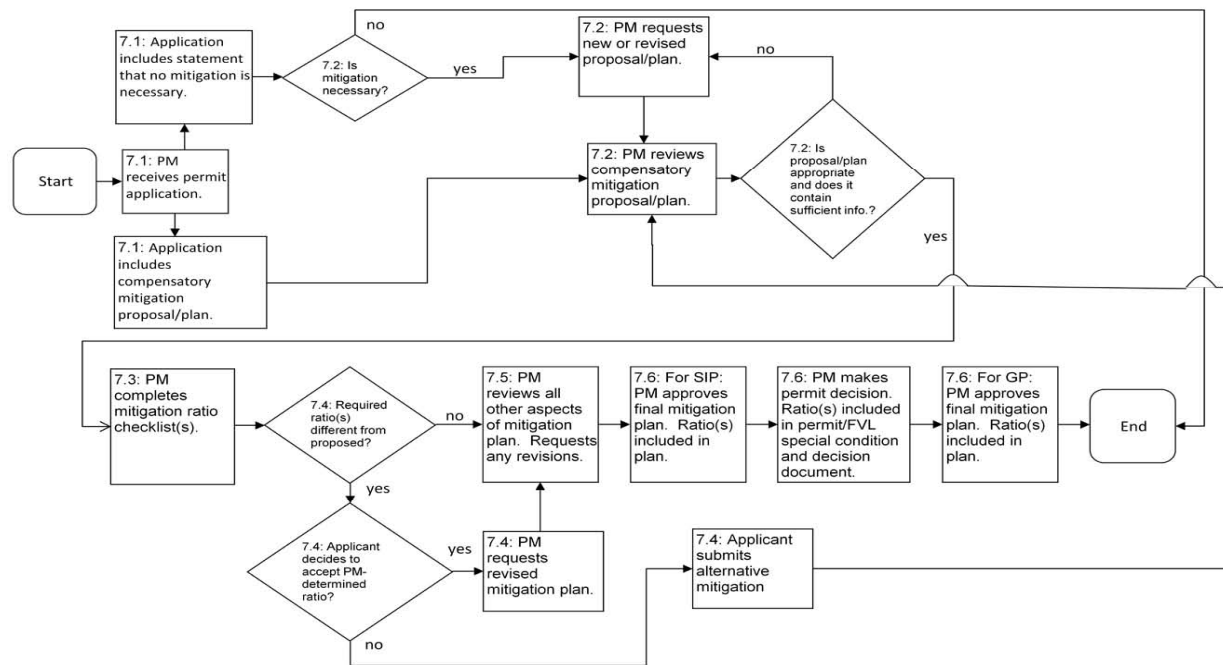
- 9.1 [12501.1-SPD Mitigation Ratio Checklist](#)
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Mitigation Ratio Setting Flow Chart

10.0 Flow Chart.



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Attachment 1

SPD Mitigation Ratio Setting Checklist

Version date: 20110412

Attachment 12501.1 - SPD Mitigation Ratio Setting Checklist

1	Date: _____ Corps file no.: _____ Project Manager: _____		
	Impact site name: _____ ORM impact resource type: _____	Impact area (acres): _____	Impact distance (linear feet): _____
	Impact Cowardin or HGM type: _____	Column A: Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____	Column B (optional): Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____
		Column C (optional): Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____	
2	<p>QUALITATIVE impact-mitigation comparison:</p> <p>Are impacts less than or equal to 0.5 acre or 300 linear feet?</p>	<p>Circle one: yes / no</p> <p>Note: steps 2 and 3 are mutually exclusive. Complete either step 2 or 3, as appropriate, then complete the rest of the checklist (steps 4-10).</p> <p>Ratio adjustment: PM justification:</p>	<p>Ratio adjustment: PM justification:</p>
3	<p>QUANTITATIVE impact-mitigation comparison:</p> <p>Are impacts greater than 0.5 acre or 300 linear feet?</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>Circle one: yes / no</p> <p>Note: steps 2 and 5 are mutually exclusive from step 3. Complete either step 2 or 3, as appropriate, then complete the rest of the checklist (steps 4-10 if step 2 was completed, steps 4, 6-10 if step 3 was completed).</p> <p>Ratio adjustment from BAMI procedure (attached):</p>	<p>Ratio adjustment from BAMI procedure (attached):</p>
4	<p>Mitigation site location:</p>	<p>Ratio adjustment: PM justification:</p>	<p>Ratio adjustment: PM justification:</p>

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Attachment 1

SPD Mitigation Ratio Setting Checklist

Version date: 20110412				
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	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):	Final ratio: ___ : 1 (column A) Proposed impact (total): ___ acre ___ linear feet to Resource type: _____ Cowardin or HGM: _____ Required mitigation: ___ acre ___ linear feet of Resource type: _____ Cowardin or HGM: _____ Additional PM comments:	Final ratio: ___ : 1 (column B) Remaining impact: _____ Required mitigation: ___ acre ___ linear feet of Resource type: _____ Cowardin or HGM: _____ Additional PM comments:	Final ratio: ___ : 1 (column C) Remaining impact: _____ Required mitigation: ___ acre ___ linear feet of Resource type: _____ Cowardin or HGM: _____ Additional PM comments:
10	Final compensatory mitigation requirements:	PM summary:		

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Attachment 2

Instructions for Preparing Mitigation Ratio Checklist

Version date: 20110412

Attachment 12501.2-SPD - Instructions for Completing Mitigation Ratio-Setting Checklist.

These instructions contain specific numeric adjustments (discrete, e.g., +1.0, or ranges, e.g., +0.25 to +4.0) that were determined by the PDT after assessing a variety of impact-mitigation scenarios and determining adjustments for each step that, in combination with other step adjustments, produce a reasonable range of final mitigation ratios. For steps where a range of adjustments is provided, PMs are directed to the attached examples for additional guidance. PMs may deviate from the guidance provided herein if such deviations can be documented in the checklist with sufficient justification.

1	Date: _____ Corps file no.: _____ Project Manager: _____		
	Impact site name: _____ ORM impact resource type: _____ Cowardin or HGM type: _____ Impact area (acres): _____ Impact distance (linear feet): _____		
	For impact site name, multiple discrete (as entered in ORM) impacts are to be evaluated using multiple checklists; however, multiple impacts to one habitat type (Cowardin or HGM) could be lumped together to determine a mitigation ratio using one checklist. For each proposed impact to waters of the U.S., the project manager (PM) should consider each factor and, if applicable, document consideration in response column(s) using applicable procedures or guidelines. For mitigation proposals with multiple mitigation sites and/or types, see QMS procedure 12501 (section 7.3).		
	Column A: Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____	Column B (optional): Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____	Column C (optional): Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____

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Attachment 3

Examples of Mitigation Ratio Setting Checklist

Version date: 20110412

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> Impact Cowardin or HGM type: <u>riverine-intermittent</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-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>	Column C (optional): Mitigation site name: _____ Mitigation type: _____ Resource type: _____ Cowardin/HGM type: _____
2	QUALITATIVE impact-mitigation comparison: Are impacts less than or equal to 0.5 acre or 300 linear feet?	Circle one: <input checked="" type="radio"/> yes / no Note: steps 2 and 3 are mutually exclusive. Complete either step 2 or 3, as appropriate, then complete the rest of the checklist (steps 4-10). Ratio adjustment: <u>0</u> PM justification: <u>PM justification: impact and mitigation are within the same water body, habitat type, etc., so functional gain and loss would be equal.</u>	Ratio adjustment: <u>+3</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>	Ratio adjustment: PM justification:
3	QUANTITATIVE impact-mitigation comparison: Are impacts greater than 0.5 acre or 300 linear feet? 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.	Circle one: yes / <input checked="" type="radio"/> no Note: steps 2 and 5 are mutually exclusive from step 3. Complete either step 2 or 3, as appropriate, then complete the rest of the checklist (steps 4-10 if step 2 was completed, steps 4, 6-10 if step 3 was completed). Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):

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Attachment 4

Mitigation Ratio Setting Checklist

Step 3, CRAM Example

Attachment 12501.4-SPD - Before-After-Mitigation-Impact (BAMI) procedure (CRAM example) version date: 20110412

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	
4.4.5 Interspersion/Zonation	9	3	-6	3	9	6	
4.4.6 Vertical Structure	6	3	-3	3	6	3	
RAW SCORE	23	14	-9	11	26	15	Quotient=ABS(I/M) _{deltas} 0.50
FINAL SCORE	63.9	38.9	-25	30.6	72.3	42	Step 5 adjustment =log(quotient)*2.5 -0.75
OVERALL SCORE	65.0	46.0	-19	32.0	70.0	38	

Instructions:

1. choose functional method. Acceptable functional assessment methods must be aquatic resource-based, standardized, comparable from site to site, peer-reviewed, and must be approved by the applicable Corps District.
2. list functions/condition categories in leftmost column
3. utilize Before-After-Mitigation-Impact (BAMI) procedure above to calculate function deltas
4. obtain absolute value (ABS*) of quotient of impact-delta over mitigation-delta for overall score (if method has no overall score, use median of quotients for function categories or individual functions. *Absolute value is the nonnegative number for any real number, so if your quotient is negative, simply drop the negative sign to get the ABS. For example: the ABS of -9/3 = 3.
5. compute log of quotient multiplied by 2.5 to obtain adjustment for step 4
6. input Step 4 adjustment into the checklist document

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Questions?

