



DEPARTMENT OF THE ARMY  
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
REGULATORY DIVISION  
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Regulatory Division  
Southeast Alaska Mitigation Fund  
POA-2012-0138

SEP 07 2017

Southeast Alaska Watershed Coalition  
Attention: Jessica Kayser Forster  
Southeast Alaska Watershed Coalition  
319 Seward St., Suite 10  
Juneau, AK 99801

Dear Ms. Kayser Forster:

This letter is in regard to the proposed "Southeast Alaska Mitigation Fund" Wetland In-Lieu Fee (ILF) operating in southeast Alaska. It has been assigned number POA-2012-0138, which should be referred to in all correspondence with us.

Please find enclosed your copy of the signed of the "Southeast Alaska Mitigation Fund" Wetland ILF Instrument dated August 2017 and approved September 7, 2017.

Questions pertaining to this matter should be directed to Calvin Alvarez via email at [Calvin.L.Alvarez@usace.army.mil](mailto:Calvin.L.Alvarez@usace.army.mil), by mail at the address above, or by phone or at (907)753-2778. For more information about the Regulatory Program, please visit our website at [www.poa.usace.army.mil/Missions/Regulatory](http://www.poa.usace.army.mil/Missions/Regulatory).

Sincerely,

A handwritten signature in black ink, appearing to read "Sheila Newman", is written over a horizontal line.

Sheila Newman  
Special Actions Branch Chief

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CC:  
Sheila Newman  
Danielle Knight



# **THE SOUTHEAST ALASKA MITIGATION FUND**

## **In-Lieu Fee Compensatory Mitigation Program Program Instrument**

**Submitted by:**

**The Southeast Alaska Watershed Coalition**

**Prepared  
By**

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Southeast Alaska Watershed Coalition

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August 2017



**SOUTHEAST ALASKA  
WATERSHED COALITION**  
CONNECT - INFORM - PARTICIPATE



## Table of Contents

THE SOUTHEAST ALASKA MITIGATION FUND .....	i
B. INTRODUCTION .....	1
C. PROGRAM GOAL.....	1
D. IN-LIEU FEE PROGRAM INSTRUMENT COMPONENTS.....	1
1.0 PROGRAM SERVICE AREA .....	1
2.0 ACCOUNTING PROCEDURES.....	4
3.0 PROVISION STATING LEGAL RESPONSIBILITY FOR COMPENSATORY MITIGATION.....	4
4.0 DEFAULT AND CLOSURE PROVISIONS.....	5
5.0 REPORTING PROTOCOLS.....	6
Monitoring reports.....	6
Credit Transaction Notification.....	7
Annual program report.....	7
Financial assurances and long-term management funding report.....	8
6.0 COMPENSATION PLANNING FRAMEWORK (See Appendix 1.0-3.0).....	9
7.0 INITIAL ALLOCATION AND RATIONALE OF ADVANCE CREDITS AND CREDIT RELEASE SCHEDULE .....	9
Advance Credits Request and Rationale: .....	9
Credit Release Schedule: .....	10
8.0 METHODOLOGY FOR DETERMINING PROJECT SPECIFIC CREDITS AND FEES .....	11
Credit Availability and Cost:.....	13
9.0 DESCRIPTION OF IN-LIEU FEE PROGRAM ACCOUNT .....	13
10.0 LONG-TERM OWNERSHIP ARRANGEMENTS.....	17
11.0 FINANCIAL ARRANGMENTS FOR LONG-TERM MANAGEMENT .....	19
E. SIGNATURE PAGE .....	20
F. APPENDIX.....	21
1.0 SAMF Compensation Planning Framework for the Southern Alexander Archipelago (HUC 190101) .....	21
a. The geographic service area.....	21
b. A description of the threats to aquatic resources in the service area .....	21
c. An analysis of historic aquatic resource loss in the service area.....	28
d. An analysis of current aquatic resource conditions in the service area(s), supported by an appropriate level of field documentation.....	28
e. A statement of aquatic resource goals and objectives for the service area, including a description of the general amounts, types, and locations of aquatic resources the program will seek to provide .....	33
f. A prioritization strategy for selecting and implementing compensatory mitigation activities.....	35
g. An explanation of how any preservation objectives identified above satisfy the criteria for use of preservation in 33 CFR 332.3(h).....	38



h. A description of any public and private stakeholder involvement in plan development and implementation, including, coordination with federal, state, tribal and local aquatic resource management and regulatory authorities .....	39
i. A description of the long-term protection and management strategies for activities conducted by the in-lieu fee program sponsor.....	40
j. A strategy for periodic evaluation and reporting on the progress of the program in achieving SAMF goals and objectives, including a process for revising the planning framework as necessary .....	40
<b>2.0 SAMF Compensation Planning Framework for the Central Alexander Archipelago (HUC 190102).....</b>	<b>41</b>
a. The geographic service area, including a watershed-based rationale for the delineation of the service area.....	41
b. A description of the threats to aquatic resources in the service area .....	41
c. An analysis of historic aquatic resource loss in the service area(s).....	48
d. An analysis of current aquatic resource conditions in the service area(s), supported by an appropriate level of field documentation.....	49
e. A statement of aquatic resource goals and objectives for the service area, including a description of the general amounts, types, and locations of aquatic resources the program will seek to provide .....	52
f. A prioritization strategy for selecting and implementing compensatory mitigation activities .....	54
g. An explanation of how any preservation objectives identified above satisfy the criteria for use of preservation in 33 CFR 332.3(h).....	58
h. A description of any public and private stakeholder involvement in plan development and implementation including coordination with federal, state, tribal and local aquatic resource management and regulatory authorities .....	58
i. A description of the long-term protection and management strategies for activities conducted by the in-lieu fee program sponsor.....	60
j. A strategy for periodic evaluation and reporting on the progress of the program in achieving SAMF goals and objectives, including a process for revising the planning framework as necessary .....	60
<b>3.0 SAMF Compensation Planning Framework for the Northern Alexander Archipelago (HUC 1901030) and the Gulf of Alaska (HUC 190104).....</b>	<b>60</b>
a. The geographic service area, including a watershed-based rationale for the delineation of the service area.....	60
b. A description of the threats to aquatic resources in the service area .....	61
c. An analysis of historic aquatic resource loss in the service area(s).....	68
d. An analysis of current aquatic resource conditions in the service area(s), supported by an appropriate level of field documentation.....	69
e. A statement of aquatic resource goals and objectives for the service area, including a description of the general amounts, types, and locations of aquatic resources the program will seek to provide .....	73
f. A prioritization strategy for selecting and implementing compensatory mitigation activities .....	75
g. An explanation of how any preservation objectives identified above satisfy the criteria for use of preservation in 33 CFR 332.3(h).....	79
h. A description of any public and private stakeholder involvement in plan development and implementation, including coordination with federal, state, tribal and local aquatic resource management and regulatory authorities .....	79



i. A description of the long-term protection and management strategies for activities conducted by the in-lieu fee program sponsor.....	81
j. A strategy for periodic evaluation and reporting on the progress of the program in achieving SAMF goals and objectives, including a process for revising the planning framework as necessary .....	81
4.0 SAMF Restoration Cost Tool (RCT).....	82
5.0 SAMF Stream and Wetland Credit Debit Method .....	88
<b>5. References .....</b>	<b>124</b>
<b>G. EXHIBITS.....</b>	<b>127</b>
1.0 SAMF Credit Availability and Reservation Letter.....	127
2.0 SAMF Credit Ledger Template.....	128
3.0 SAMF Credit Sale Letter and Receipt of Payment.....	129
4.0 SAMF Stakeholder Involvement.....	130
<b>H. LITERATURE REVIEW:.....</b>	<b>133</b>



ACRONYMS AND ABBREVIATIONS	
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
CWA	Clean Water Act
FU	Functional Unit
HGM	Hydrogeomorphic Method
HUC	Hydrologic Unit Code
ILF	In-Lieu Fee
IRT	Interagency Review Team
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
RGL	Regulatory Guidance Letter
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife
WESPAK-se	Wetland Ecosystem Services Protocol Alaska, Southeast
WCM	Wetland Credit Method
RCT	Restoration Cost Tool
SAMF	Southeast Alaska Mitigation Fund
SCM	Stream Credit Method
SIRT	Statewide Interagency Review Team



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## **B. INTRODUCTION**

U.S. Army Corps of Engineers (USACE) approval of this instrument constitutes the regulatory approval required for the Southeast Alaska Watershed Coalition (SAWC) Southeast Alaska Mitigation Fund (SAMF) In-Lieu Fee Program to be used to provide compensatory mitigation for Department of the Army (DA) permits pursuant to 33 CFR 332.8(a)(1). This instrument is not a contract between the Sponsor or Property Owner and USACE or any other agency of the federal government. Any dispute arising under this instrument will not give rise to any claim by the Sponsor or Property Owner for monetary damages despite any other provision or statement in the instrument to the contrary.

This instrument refers to the development of an in-lieu fee (ILF) program that will offer third-party compensatory mitigation for permitted impacts regulated under Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act of 1899. The ILF program name is The Southeast Alaska Mitigation Fund (SAMF). The Southeast Alaska Watershed Coalition (SAWC), an Alaskan non-profit community-based natural resource management coalition, will sponsor this program.

## **C. PROGRAM GOAL**

The primary goal of the SAMF program is to provide third-party compensatory mitigation for permitted impacts regulated under Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act of 1899 within Southeast Alaska.

The SAMF program will serve as one option available to permittees to provide compensatory mitigation for those unavoidable impacts to jurisdictional waters when the USACE has determined compensatory mitigation is required. This may include restoration, enhancement, and/or establishment of wetlands, streams and other aquatic resource on either private and/or public lands.

## **D. IN-LIEU FEE PROGRAM INSTRUMENT COMPONENTS**

### **1.0 PROGRAM SERVICE AREA**

*(The ILF program service area is described in more detail in the Compensation Planning Framework section Appendices F. 1.0-3.0)*

The Southeast Alaska Mitigation Fund's ILF operational area is the SAWC existing area of focus, which is Southeast Alaska. The operational area will be divided into three service areas established in consideration of 6-digit USGS Hydrologic Unit Codes (HUC) (Figure 1). The three service areas will be the Southern Alexander Archipelago (HUC 190101); the Central Alexander Archipelago (HUC 190102); and the Northern Alexander Archipelago (HUC 190103) combined with the Yakutat-Bering HUC 190104, excluding Canada.



Southeast Alaska is rural in nature and has a limited number of readily available restoration sites. Moreover, permit data indicates the majority of impacts that occur in Southeast Alaska are small in size (less than 2 acres)<sup>1</sup>. Therefore, economic viability of the SAMF program was considered in the establishment of the three service areas. It is necessary for SAMF to have the ability to consolidate funds generated from small sales of advance credits within each of the three service areas in order to target the limited number of readily available restoration sites within each service area. This will allow the SAMF program to target ecologically significant aquatic resources and functions, choose mitigation projects that have less uncertainty and risk associated with project success, and reduce temporal loss.

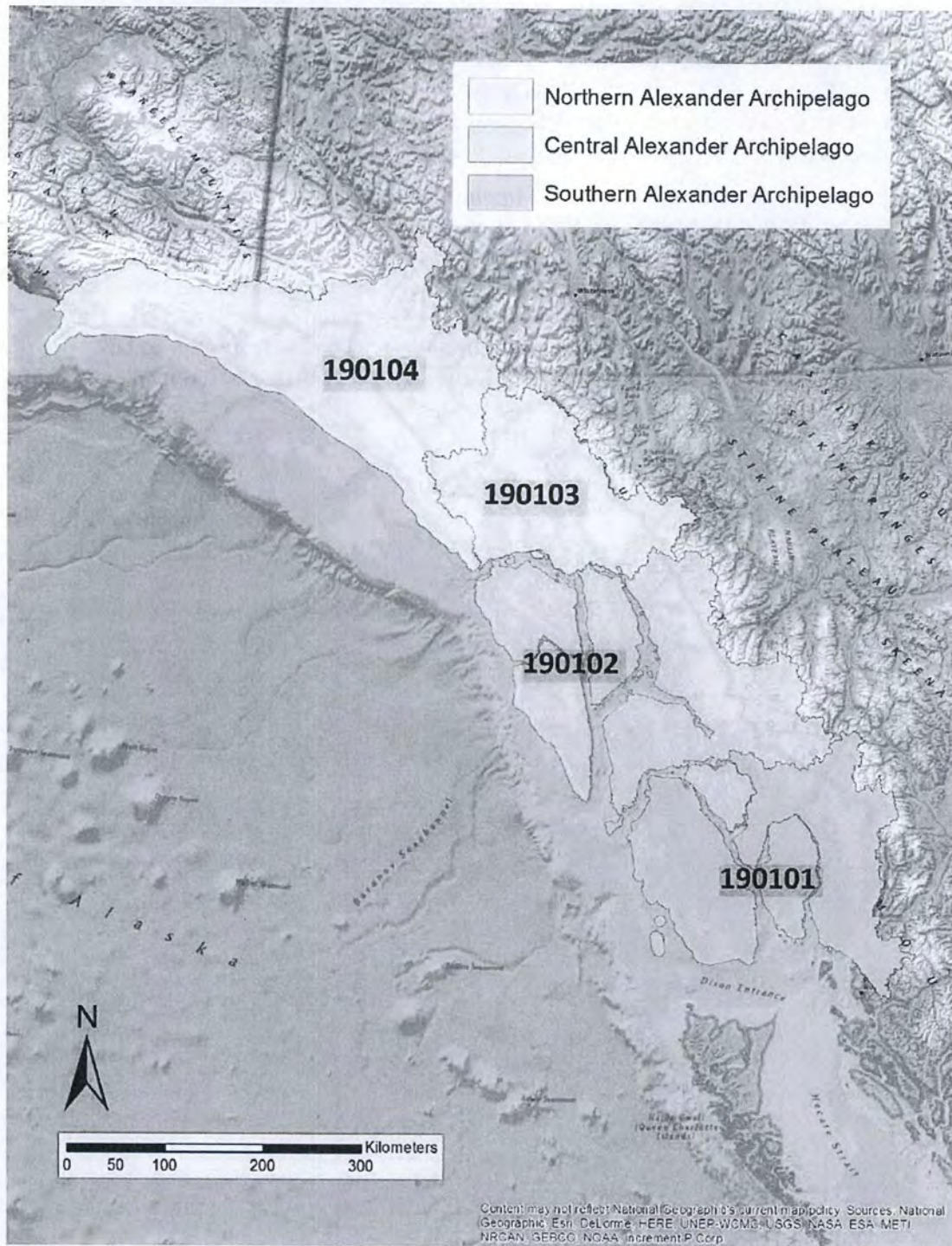
SAWC's prioritization strategy for selecting and implementing compensatory mitigations sites within a service area is a two-step process. The first step is to identify top priority watersheds within each service area based on existing assessments and other resources. Focusing on a 10-digit hydrologic unit basis will identify the top priority watersheds within each service area. This is congruent with the USFS Tongass National Forest Watershed Condition Framework. The second step is to identify potential mitigation sites within these watersheds that could be implemented to generate credits. Greater detail on this process is available in the Compensation Planning Frameworks for each service area.  
Section F, Appendices 1.0-3.0.

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<sup>1</sup> Permit Data provided by the USACE, Alaska District. October 2014.



Figure 1: The Map of the Southeast Alaska Mitigation Fund's three service areas (the Southern Alexander Archipelago, Central Alexander Archipelago, and the Northern Alexander Archipelago combined with the Yakutat-Bering HUCs. Including the 6 digit HUC number associated with each service area. These boundaries are watershed boundaries not geopolitical boundaries. The program does not operate in Canada.





## **2.0 ACCOUNTING PROCEDURES**

§332.8 (d)(6)(ii)(B) of the Final Rule requires the ILF program sponsor to establish and maintain an ILF program account. The term "accounting procedures" is not explicitly defined in the Final Rule, but generally refers to the system for tracking credit production, credit transactions and financial transaction between SAMF and permittees.

Upon USACE approval of SAMF, SAWC will create a separate ILF program account before any fees are accepted. The purpose of this account is to track the fees accepted and disbursed for the purpose of providing aquatic resource mitigation. SAWC, as the ILF Sponsor, will maintain the SAMF program account with a financial institution that is a member of the Federal Deposit Insurance Corporation (FDIC). The ILF payments received will be deposited in the ILF program account. The program account will collect deposits from the sale of credits, and will be used only for expenses such as land acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, and remediation or adaptive management activities, as well as administration of the in-lieu fee program. All interest earned on this account will be used to support the SAMF program (see section 9- Program Account).

SAWC shall account for the funds held in accordance with generally accepted accounting principles and provide the USACE and the IRT with an itemized annual statement that includes one program account, 4 sub-accounts and individual ledgers for each mitigation project §332.8(i)(3). Credits and financial transactions will not only be tracked on a programmatic basis, but also for each individual project §332.8(p)(2).

Section 9 of the instrument includes a description of the in-lieu fee program account: how the program account operates as well as an explanation of the system for tracking the production of credits, credit transactions, and financial transactions between SAWC and permittees.

## **3.0 PROVISION STATING LEGAL RESPONSIBILITY FOR COMPENSATORY MITIGATION**

§332.8 (d)(6)(ii)(C) of the Final Rule requires a provision stating that legal responsibility for providing compensatory mitigation lies with the sponsor once a permittee secures credits from the sponsor.

Acceptance of a payment into SAMF is an acknowledgement that SAWC, and not the permittee, is responsible for satisfying the compensatory mitigation requirements of the Section 404 or Section 10 permit. SAWC will issue documentation to both the permittee and the USACE for each project that uses SAMF for compensatory mitigation purposes. This documentation, in the form of a signed letter on SAWC letterhead, shall include the permit number, permittee name, permit site location, and a statement indicating the number and resource type of credits that have been secured from SAMF (Exhibit 1.0 and 3.0).



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The transfer of mitigation liability to SAWC including, but not limited to, the identification and selection of sites, property rights acquisition, mitigation plan design and development, construction, monitoring, site-protection, and long-term management and maintenance of the required mitigation, occurs upon the USACE's receipt of the acceptance documentation (See Credit Sale Letter and Receipt of Payment, Appendix 4) from SAWC.

#### **4.0 DEFAULT AND CLOSURE PROVISIONS**

Default:

*Compliance:* The sponsor is responsible for complying with the terms of this instrument. If the District Engineer (DE) determines, as a result of review of annual reports on the operation of the in-lieu fee program, that it is not performing in compliance with this instrument the DE will take appropriate action. This action may include suspension of credit sales to ensure compliance with this in-lieu fee program instrument.

*Compensatory Mitigation Deficit:* If the DE determines that there is a compensatory mitigation deficit in a specific service area by the third growing season after the first advance credit in that service area is sold, and determines that it would not be in the public interest to allow the sponsor additional time to plan and implement an in-lieu fee project, the DE must direct the sponsor to disburse funds from the in-lieu fee program accounts to provide alternative compensatory mitigation to fulfill those compensation obligations.

*Suspension and Termination:* If the DE determines that this program is not meeting performance standards or complying with the terms of this instrument, appropriate action will be taken. Such actions may include, but are not limited to, suspending credit sales, adaptive management, decreasing available credits, utilizing financial assurances, and terminating the instrument.

Notwithstanding the foregoing, any delay or failure of the sponsor to comply with the terms of this instrument or any mitigation project shall not constitute a default if and to the extent that such delay or failure is primarily caused by any act, event or conditions beyond the sponsor's reasonable control which significantly adversely affect the sponsor's ability to perform its obligations hereunder. Such acts, events or conditions may include: (i) acts of God, such as earthquake, fire, landslide, other natural disaster; (ii) condemnation or other taking by any governmental body or corporate entity with eminent domain authority (or voluntary sale under threat of eminent domain); (iii) change in applicable federal or state law, regulation or court decision affecting USACE jurisdiction, which affects compensation for permitted impacts to waters of the U.S. and state waters. If the performance of, and compliance with, the terms of this instrument or any mitigation project are affected to a material extent by any such act, event, or condition, the sponsor shall give written notice to the DE as soon as is reasonably practicable. The DE shall have sole reasonable discretion to determine whether such an act, event, or condition qualifies under this paragraph as being out of the sponsor's control and whether or not it shall constitute a material default.



Although the sponsor shall not be responsible for events beyond the sponsor's reasonable control as described above, the DE may require that the sponsor use remaining contingency funds to remediate or restore adverse impacts to a mitigation site resulting from such events.

#### Closure:

The Sponsor or the USACE, acting independently or in concert, may force closure or terminate this Instrument within 60 days of written notification to the other party. In the event that the SAMF In-Lieu Fee Program operated by the Sponsor is terminated, the Sponsor is responsible for providing to the USACE and IRT reports detailing credit/debit and fee ledger balances, as well as status reports for all compensatory mitigation projects. The Sponsor will remain responsible for fulfilling any outstanding or pre-existing project obligations including the successful completion of ongoing compensatory mitigation projects, relevant maintenance and monitoring, reporting, and long-term management requirements. The Sponsor will remain responsible, with funding from program accounts, for fulfilling these obligations or ensuring the transfer of long-term management and maintenance of all mitigation lands to a separate party approved by the USACE.

Funds remaining in the program accounts after the above obligations are satisfied must continue to be used for the restoration, enhancement, and/or establishment of aquatic resources and associated upland buffers. Any expenditure of these remaining funds requires IRT review and USACE approval. If the SAMF Program has outstanding mitigation obligations at the time of closure which it is unable to fulfill, the USACE, in consultation with the IRT, will direct the Sponsor to 1) use these funds to provide further restoration, enhancement and/or establishment activities, 2) secure credits from another source of third party mitigation, or 3) disburse funds to another entity such as a governmental or non-profit natural resource management entity willing to undertake further compensation activities.

## 5.0 REPORTING PROTOCOLS

§332.8 (d)(6)(ii)(E) of the Final Rule requires the instrument to include reporting protocols. The in-lieu fee sponsor has four reporting requirements:

2. Monitoring reports, on a schedule and for a period as defined by project-specific mitigation plans;
3. Credit transaction notification;
4. An annual program report summarizing activity from the program account (financial and credit accounting); and
5. An annual financial assurance and long-term management funding report.
6. An audit by an independent entity every five years

#### Monitoring reports



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Monitoring is required of all compensatory mitigation projects to determine whether performance standards are being met and whether additional measures are necessary to ensure that each compensatory mitigation project accomplishes its objectives. If SAWC fails to submit reports within the deadlines outlined in the mitigation plan(s), SAWC may be subject to any compliance and/or enforcement action at the discretion of the USACE (see Section 4.0, Default and Closure).

Monitoring will occur in accordance with § 332.6. Project-specific mitigation plans will detail the parameters to be monitored, the length of the monitoring period, the dates that the reports must be submitted, the party responsible for conducting the monitoring, and the frequency for submitting monitoring reports to the USACE. The level of detail and substance of the reports must be commensurate with the scale and scope of the compensatory mitigation project. The USACE will provide monitoring reports as required by §332.6(c)(3).

### **Credit Transaction Notification**

Section 3.0 (Provisions Stating Legal Liability) establishes the terms by which the legal responsibility for compensation requirements is transferred from the permittee to SAWC. These terms require SAWC to submit a Credit Sale Letter and Receipt of Payment (See Exhibit 3.0) to the USACE. The document must be signed and dated by SAWC and the permittee. The process for requesting, purchasing, and verifying credit sale with the USACE is outlined in Section 8.0 of this document. The Credit Availability and Reservation Letter and the Credit Sale Letter and Receipt of Payment outline specific information required. See Exhibits, 1.0 and 3.0.

SAWC will submit the signed and dated Credit Sale Letter and Receipt of Payment to the USACE within 30 days of the SAMF program receiving the complete fee from the permittee. A copy of each Credit Sale Letter and Receipt of Payment will be retained in SAWC's administrative ledgers and accounting records for SAMF.

Prior to submitting a signed and dated Credit Sale Letter and Receipt of Payment to the USACE, SAWC will issue a Credit Availability and Reservation Letter to the permittee to supplement the permit application. The Credit Availability and Reservation Letter will be a contractual agreement between SAWC and the permittee stating that the agreed upon credits will be reserved for 120-days. If the time period lapses and the credits have not been purchased, the credits will no longer be reserved for the Applicant and may be allocated to other customers.

### **Annual program report**

SAWC must submit an annual program report with ledgers for each individual mitigation project [required under §332.8(p)(2)] to the USACE and the IRT. The annual ledger report must be submitted no later than January 31 of the following year, or the next business day if that date falls on a federal or state holiday or on a weekend.

The annual program report must include the following information:

- All income received, disbursements and interest earned by the program account for the program by recourse type



- A list of all permits for which SAMF program funds were accepted by individual service area (each 6-digit HUC), including
- The USACE permit number (and/or state permit number)
- The location of the authorized impacts
- The amount of authorized impacts
- The amount of required compensatory mitigation
- The amount paid to MFP
- The date the funds were received from the permittee
- A description of SAMF program expenditures from the account (i.e., the costs of land acquisition, planning, construction, monitoring, maintenance, contingencies, adaptive management, and administration) for the program by location
- Credit ledger reporting, also by individual service area, including: The balance of advance credits and released credits at the end of the report period for the program
- All additions and subtractions of credits
- Other changes in credibility (e.g., additional credits released, credit sales suspended, etc.)
- Any other information required by the DE

The DE may audit the records pertaining to the program account at any time; however, it is the intent of the DE to perform a routine audit every 3-5 years. All books, accounts, reports, files, and other records relating to the in-lieu fee program account shall be made available at reasonable times for inspection and audit by the DE.

#### **Financial assurances and long-term management funding report**

Financial assurances are those funds or other resource that SAWC must provide to ensure that if a compensation project fails to meet its performance standards or if SAWC ceases to exist, funds are available to guarantee the project will be successfully completed. These funds differ from those set aside to support long-term management and stewardship activities. Long-term management funding ensures resources are available for management after performance standards are met and help ensure the project is sustainable. SAWC will submit an annual report for financial assurances and for long-term management to the USACE and the IRT. These reports will include:

- ii. Beginning and ending balances of the individual project account providing funds for financial assurance and long-term management;
- iii. Deposits into and any withdrawals from the individual project accounts providing funds for financial assurance and long-term management;
- iv. Information on the amount of required financial assurances and the status of those assurances, including their potential expiration for each individual project.
- v. Investment portfolio of funds

In accordance with regulations at § 332.3(n)(5), the bonding company or financial institution providing financial assurance for SAWC shall notify the USACE at least 120 days in advance of any planned termination or revocation of financial assurances.



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## **6.0 COMPENSATION PLANNING FRAMEWORK (See Appendix 1.0-3.0)**

### **7.0 INITIAL ALLOCATION AND RATIONALE OF ADVANCE CREDITS AND CREDIT RELEASE SCHEDULE**

§332.8(d)(6)(iv)(B) of the Final Rule requires the number of advance credits authorized for an ILF program to be specified in the instrument by individual service area. The instrument must also contain a schedule for the fulfillment of advance credit sales.

#### **Advance Credits Request and Rationale:**

Upon approval of the instrument, SAWC is permitted to sell advance credits in the amount indicated in the chart below. The number of advance credits available for sale is specified and tracked in the SAMF program account by aquatic resource type.

SAWC used the following information to determine the number of advance credits to include in this program: (1) The compensation planning framework (which includes a history of permitted impacts throughout the program service areas); (2) SAWC's past performance for implementing aquatic resource restoration, establishment, and/or enhancement activities in the proposed service areas and other areas; (3) The availability of and number of credits generated by known potential mitigation projects; and (4) The projected financing necessary to begin planning and implementation of in-lieu fee projects. The goal is to ensure that SAWC does not sell more advance credits than it can reasonably deliver in the time frame specified in § 332.8(n)(4), generally 3 years.

SAWC is requesting a total of 54 wetland functional acre advance credits and 1850 stream functional linear foot advance credits for the combined three service areas. In determining the number of advance credits per service area, shown in Table 1, SAWC considered the anticipated and identified mitigation opportunities for each service area. The wetland mitigation sites that SAWC has identified generate approximately 4-8 functional acre credits per site and the stream mitigation sites generate between 200-400 functional linear feet credits per site. During an IRT meeting dated August 18<sup>th</sup>, 2016 SAWC provided two mitigation site examples that demonstrated this potential credit generation. Therefore, SAWC has requested sufficient advance credits to initiate either two smaller projects or one larger project every 2 years in each service area.

The advance credits for SAMF will be divided into three service areas as outlined in the table below



Table 1: Advance Credit by service area and resource type.

Service Area	Wetland Credits (functional acre)	Stream Credits (functional linear foot)
Southern Alexander Archipelago	18	700
Central Alexander Archipelago	18	450
Northern Alexander Archipelago/Gulf of Alaska	18	700

For each service area, once all the advance credits have been sold, no more advance credits may be sold until an equivalent number of credits have been released.

When SAMF has met all mitigation obligations of advance credit sales, any remaining monies that were paid into SAMF through those sales may be used to establish additional mitigation sites, in advance of a mitigation liability.

As sponsor of SAMF and program manager for the day-to-day operation of the SAMF program, SAWC will determine how many credits are available for purchase at any given time and will retain the right to deny sale of advance or released credits to applicants based on the following considerations:

#### Credit Release Schedule:

Each SAMF mitigation site will have a credit release schedule that outlines the timing and amount of credit release upon meeting certain milestones. Credit release schedules and associated milestones will vary by project and by mitigation type (e.g., restoration, enhancement, and establishment). In all cases, the SAMF program will secure in-lieu fee project sites and conduct initial physical and biological improvements, including land acquisition when applicable, by the third full growing season after the first advance credit is sold.

As a general guidance, credit release for restoration, enhancement and/or creation projects will occur as follows:

- 15% of credits are released upon approval of a mitigation project plan, which establishes protection placed on real property at the compensatory mitigation project site, and issuance of USACE permits;
- 35% of credits are released upon completion of physical and biological improvements at the mitigation site;
- 50% of credits are released incrementally as performance standards are achieved and project milestones are met;



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The actual number of credits available for consideration to be released at any given point during or after implementation of a mitigation project will be determined through site monitoring and reporting. In order for credits to be released, the sponsor will follow the procedure as described in §332.8(o)(9) of the Final Rule.

## **8.0 METHODOLOGY FOR DETERMINING PROJECT SPECIFIC CREDITS AND FEES**

While a method for calculating credits is required in the ILF program instrument, the number of credits a specific mitigation site generates be determined during the instrument modification for site additions pursuant to §332.8(g)(1) of the Final Rule. The total of potential credits a mitigation site produces is an estimated amount that may vary depending on the site's actual performance.

There is neither a wetland nor a stream credit generation method - for restoration, enhancement, or creation- in Southeast Alaska. Additionally, the U.S. Army Corps of Engineers (USACE) Alaska District has only very recently established agency guidance for calculating aquatic resource credits for mitigation sites and debits at the permitted impact sites. The SAMF methods described in this document utilize this new guidance (USACE 2016).

SAWC has collaborated with organizational partners, including the IRT, the Southeast Alaska Land Trust (SEAL Trust), The Nature Conservancy Virginia Chapter - Virginia ILF program, Herrera LLC, Sitka Hydro Science LLC, Paul Adamus, and CH2M HILL to develop this process for calculating wetland and stream credit methods at SAMF mitigation sites. In particular, SEAL Trust and the City and Borough of Juneau (CBJ) have invested financial resources to develop and test the function-based wetland assessment tool that the wetland credit-debit method utilizes.

Appendix 5 describes the wetland credit-debit method (WCDM) and the stream credit-debit method (SCDM) for the Southeast Alaska Mitigation Fund In-Lieu Fee mitigation program. The SAMF ILF Program will sell both wetland credits and stream credits.

A credit represents the ecological lift of aquatic function(s) at either a wetland or a stream site following a mitigation action (creation, restoration, and/or enhancement). Credit calculations are based on the difference ( $\Delta$ ) between ecological function(s) at the site following the mitigation action (projected conditions) and the existing site conditions:

$$\Delta = \textit{With Mitigation} - \textit{Current Condition}$$

A debit represents the ecological loss of aquatic function(s) following a permitted impact to an aquatic resource. Debit calculations reflect the difference, or Delta ( $\Delta$ ), between the baseline (Current Condition) of the assessment area and the anticipated condition (With Impact) of the assessment area after the authorized discharge has occurred:

$$\Delta = \textit{Current Condition} - \textit{With Impact}$$



The WCDM is based on the *Wetland Ecological Services Protocol for Alaska-Southeast* (WESPAK-SE) Version 2 (Adamus 2015), which outlines a method to calculate the gain of function that would result from a wetland mitigation activity. Each gain of function equates to a proportional number of credits generated at a site. The SCDM is primarily drawn from *A Function-Based Framework for Stream Assessment & Restoration Projects* (Harman et al. 2012) and amended to utilize aspects of the USDA Forest Service Tier II Stream Survey Protocol (USDA 2001).

Credits will be tracked by USACE RIBITS and in the Credit Ledger Template (Exhibit 3.0) by aquatic resource type and area and/or linear footage of the mitigation site. Each credit type has an associated fee. SAMF credit fees are discussed in the instrument's draft fee schedule.

#### Draft Fee Schedule:

In accordance with the Final Rule, SAWC will set the fee schedule. However, the USACE will evaluate the fees to ensure that they satisfy the requirements listed in §332.8 (o)(ii). SAWC will establish fees for advance credits based on known costs associated with identified mitigation projects. Therefore, fees will vary over time and between service areas. Establishing fees based on known costs associated with identified mitigation projects will: 1) Provide transparency to permittees purchasing advanced credits; and 2) Provide USACE confidence that the cost per unit of credit is sufficient and includes the expected costs associated with projects.

Because there is no standardized credit price in SAMF's service areas, SAWC will determine the price of a credit and the internal procedures for selling credits. Credit fees for SAMF projects have been and will be determined based on full cost accounting, which includes an analysis of the expected cost associated with the restoration, enhancement and/or establishment of aquatic resources and associated riparian areas and upland buffers in the service area.

The costs included in this analysis are those related to land acquisition or easement, project planning and design, construction, plant materials, labor, legal fees, monitoring, remediation or adaptive management activities, program administration, contingency costs appropriate to the stage of project planning, including uncertainties in construction and real estate expenses, the resources necessary for the long-term management and protection of the in-lieu fee project, and financial assurances that are expected to be necessary to ensure successful completion of in-lieu fee projects.

The information currently available to mitigation sponsors regarding cost is compiled from past stream and wetland restoration sites. The data is insufficient to determine a set of credit prices in advance of assessing the costs associated with an identified mitigation site.

Each year, SAWC will provide a credit price range for wetland and stream credit. This range is based on the initial analysis of past restoration sites in Southeast AK. However the exact credit price will be determined on the costs associated to carry out specific mitigation sites that have



been identified prior to the selling of any advance credits. Therefore it will be necessary for permittees to contact SAMF staff to receive an exact credit price at the time when they are interested in purchasing credits.

Resource type	Wetland	Stream
Price per credit	\$20,000-\$60,000	\$500-\$10,000

Once SAWC has established SAMF and has completed a portfolio of ILF projects, true costs will become certain and SAWC will have improved information to determine accurate credit prices that could be determined in advance of identifying a known mitigation site. Additionally, future mitigation bankers will establish restoration, enhancement and creation mitigation sites. Those project outcomes will also provide the USACE and SAWC with detailed information on ILF program costs, which will increase certainty and ability to project credit prices.

#### **Credit Availability and Cost:**

A permittee may propose to use the SAMF program to satisfy part or all of its compensatory mitigation obligations. If a permittee chooses to use SAMF, it must contact SAWC for a statement of credit availability and cost per credit type. SAWC will provide said statement within 30 days. SAWC makes no guarantee that credits will be available for purchase to fulfill all or part of a permittee's compensatory mitigation obligations.

Authorization to sell credits to satisfy a permittee's compensatory mitigation requirements is contingent on compliance with all of the terms of the instrument, including amendments and modifications to the instrument as well as approval from the USACE.

#### ***Process for Requesting Credits:***

The process for requesting credits from SAMF is briefly outlined as follows:

- Applicant contacts SAWC for credit availability;
- If credits are available, SAWC will issue a Credit Availability and Reservation Letter with a specific payment deadline (see Section G. Exhibits);
- Applicant submits Credit Availability and Reservation Letter with permit documents to the USACE program manager;
- When the applicant is ready to purchase mitigation credits, SAWC and the applicant complete a Credit Sale Letter and Receipt of Payment reflecting any changes since the initial request and the final mitigation requirements of the permit;
- SAWC issues acknowledgement of payment and assumes liability for impacts and mitigation requirements. SAWC submits a Credit Sale Letter and Receipt of Payment (see Exhibits) to the USACE within 30 days of receiving the letter and payment from the Applicant.

## **9.0 DESCRIPTION OF IN-LIEU FEE PROGRAM ACCOUNT**



§332.8 (d)(6)(iv)(D) of the Final Rule requires the instrument to include a description of the in-lieu fee program account. Language requirements for establishment of the program account are provided in Section 2.0. This section describes how the program account operates.

Upon approval of SAMF, SAWC will create and maintain distinct and separate accounting — hereinafter referred to as the ILF program account — of revenues and expenses, all financial transactions, and asset management associated with SAMF. Only credit fees and any interest earned from those fees will be used to contribute to the ILF program account. Those funds will be used for the selection, design, acquisition, implementation, monitoring, management and protection of SAMF ILF projects and allowable SAMF administrative costs associated with administration of the ILF program. Mitigation funds accepted from permittees into SAMF will be kept in an entirely separate account from funds accepted by SAWC from other entities and for other purposes.

SAWC will have a single ILF account with sub-accounts by service area. Mitigation projects will be categorized by service area. Upon the sale of the first advance credits the following sub-accounts for each service area will be established under the ILF program account:

- An administration account,
- A mitigation account,
- A contingency account, and
- A long-term management account.

Except as otherwise approved by the USACE, non-expended funds from credit sales will be held in federally-insured, interest-bearing financial instruments that may include, but are not limited to, checking accounts, money markets, and certificates of deposit at a financial institution(s) that is a member of the Federal Deposit Insurance Corporation (FDIC). All interest and earnings from the program account will remain in that account for the purpose of providing compensatory mitigation for impacts to waters of the U.S. Interest earnings from the entire program account will be spent at the discretion of SAWC for the purpose of compensatory mitigation and can be directed to any of the four sub-accounts: program administration account, mitigation account, contingency account, or long-term management account.

i) Administration Account:

The administration account will be used to administer the overall SAMF program. The administration account will not exceed 15% of the total program account at any time and will be funded initially by deposits of 10% of credit sales fees and 15% of any interest accumulated in all program accounts. This account will be used to pay for program administrative duties not directly attributable to approved mitigation projects, including but not limited to:

- a. Staff time and employment expenses; Audit prep, travel associated with programmatic audit, correspondence and meetings with IRT and other regulatory agencies- including negotiation of modifications to this instrument;
- b. Office expenses; rent, computer equipment, and office equipment and supplies related to program administration, phone, Internet, and other communications expenses;
- c. Ledger Management; fee and credit accounting;



- 
- d. Reporting;
  - e. Programmatic audit;
  - f. Bank fees associated with operation of the program.

ii) Mitigation Project Account:

The mitigation project account will hold mitigation project establishment funds (fees) from initial credit sales. Mitigation project expenses will be disbursed from this account to approved mitigation projects.

Mitigation projects will be funded directly by transfer from the mitigation account once compensatory mitigation project plans have been approved by the USACE. All funds within the mitigation accounts will be restricted to implementation and operation of their respective compensatory mitigation projects, but may be used for any of the below expenses incurred by the project during the implementation phase.

Each approved compensatory mitigation project budget will be tracked in the mitigation account. The mitigation project budget, upon approval of the compensatory mitigation project plan, is expected to have sufficient funds to cover all anticipated project-specific expenses. The fees in this account will be used to carry out all stages of compensatory mitigation projects; preliminary project identification leading to site selection and credit generation; compensatory mitigation project plan development; land acquisition or protection; planning and design; project implementation; project management, monitoring and maintenance activities; site specific legal services; and other activities and expenses directly attributable to a specific compensatory mitigation project.

iii) Contingency Account:

A contingency account will be established to cover contingencies related to project implementation or implementation of adaptive management plans for established compensatory mitigation projects. These monies are financial assurance and are required, unless determined not necessary, by 2008 Final Rule. These funds will only be used during the implementation and monitoring phases and will not be used to support sites that have achieved their performance standards and are in the long-term management phase. The contingency fund will be a single fund available to support any project in the implementation or monitoring phase. Additional financial assurances such as performance bonds, escrow accounts, casualty insurance letters, etc. will be determined on a site-by-site basis by the USACE in consultation with SAWC. If additional financial assurances are required, the USACE District Engineer will determine the required amount in consultation with SAWC. The determination must be based on the size and complexity of the compensatory mitigation project, the degree of completion of the project at the time of project approval, the likelihood of success, the past performance of SAWC, as well as, any other factors the DE deems appropriate.

iv) Long-Term Management Account:

SAMF will maintain a long-term management account. The long-term management account will be held in reserve to fund the long-term management of compensatory mitigation sites. Long-term management entails management of mitigation sites after performance standards have been achieved and the specified monitoring period has closed as well as the management of the funding mechanisms and disbursement procedures.



A long-term management plan<sup>2</sup> will be submitted along with the site-specific mitigation plan. It will act as a stand alone document once the site is closed and will include information pertaining to the long-term endowment of the site, the site protection instrument, the specific long-term management actions, the identification of the long-term manager if not SAWC, and the tasks and contractual actions associated with disbursement procedures when SAWC is not the designated long-term manager.

Long-term financing mechanisms may include non-wasting endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments.

Site management will abide by the principles of adaptive management, which serves as a guide for revising long-term management tasks and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect mitigation success. Such measures may entail remediation and changes to the long-term management plan in the event of a major disturbance or enforcement of protection terms. If changes to the long-term management plan need to occur due to unforeseen obstacles, SAWC will work in consultation with the USACE to make amendments to plan.

#### Ledgers

SAWC will maintain two ledgers: one to track mitigation fees and expenditures, and a second to track debits and credits. Both ledgers will be organized by the SAMF service areas (6-digit HUC) and the two will be related to each other. The ledgers will be used to track the source of funding for compensatory mitigation projects as well as where and how fees are collected from credit sales are spent.

##### 1. Fee Ledger

The fee ledger will track all income (mitigation fees collected from advance or released credit sales and any interest earned) and expenditures from the program. The fee ledger will show the following:

For each mitigation project:

- USACE project name (POA number and waterway)
- Credit fee amount
- List of expenditures by task categories covering all aspects of implementing mitigation receiving projects (e.g., administrative costs specific to the project, acquisition of property and protections, design and permitting, construction, monitoring, and long-term maintenance and management)

For each service area: Deposits and expenditures from the SAMF administration account:

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<sup>2</sup> The USACE, Alaska District has an example Long Term Management Plan that was provided to SAWC November 2016. SAWC will utilize the template provide by the USACE



- 
- Deposits from each USACE project (POA number and waterway) into each account (administration, mitigation, contingency & long-term management); In addition, interest income for each account
  - Expenditures for each compensatory mitigation project from each account (administration, mitigation, contingency & long-term management)

Fee ledgers will be provided to the USACE in annual accounting reports by January 31 of the following year for approval by the USACE. Reports will include detailed summaries of program account deposits and disbursements for each ILF project made over the previous fiscal year (January 1-December 31). The USACE may review program account records with 14 days written notice. When so requested, SAWC will provide access to all books, accounts, reports, files, and other records relating to the program account.

## 2. Credit Ledger

SAWC will maintain a credit ledger to account for all credit transactions including issuance of advance credits, the sale of advance or released credits to permit applicants, and the release of credits. The credit ledger template is shown in Exhibit 2.0.

SAWC will compile an annual credit ledger report for the USACE that will include the beginning and ending balance of advance and released credits, permitted impacts by resource type (wetland and streams) for which the ILF program will offset compensatory mitigation requirements, all additions and subtractions of credits and any other changes in credit availability. The ledger will contain basic information about each impact site for which the ILF program is providing mitigation and about each compensatory mitigation project, including the amount of compensation being provided by each mitigation method and aquatic resource type. Debits and credits will be associated with unique identifiers in the accounting system and ledger. For permitted impact debits, the unique identifier will be the USACE project name for the project. For compensatory mitigation project credits, the unique identifiers will be a unique project name and/or number issued for each compensatory mitigation project.

## 10.0 LONG-TERM OWNERSHIP ARRANGEMENTS

SAWC will consider mitigation projects on both private and public lands. Private properties with existing conservation easements or equivalent protections as well as lands held and protected by state, federal, tribal, or other entities in the public trust present opportunities to maximize cost-efficiency as land costs often comprise one of the largest component costs of a mitigation project.

Mitigation sites on private land will be protected by a long-term protection document, which may include a real-estate instrument, deed restriction or other legal instruments/arrangements approved by the USACE, as required under 33 CFR 332.7. SAWC intends to partner with statewide and regional land trust entities that can hold a conservation easement or fee title to property on which mitigation is conducted, as well as other land owners, both public and private, who have the authority to hold legal instruments that dictate land and resource use.



SAWC will develop a long-term management plan<sup>3</sup> for each mitigation site. This plan will be stated in the site-specific mitigation plan and approved by the USACE. Each long-term management plan will address site maintenance and protection, identify the party responsible for long-term management, and describe the mechanism(s) for financing long-term management activities. If necessary, the plan will also describe how the responsibility and funding for long-term management will be transferred to another entity.

SAWC has several legal mechanisms whereby approved compensatory mitigation properties could receive long-term protection and management. These include, but are not limited to:

- Partnership with a land trust to execute and hold a conservation easement on certain properties with willing public or private landowners;
- Partnership with a property owner that holds a conservation easement or deed restriction;
- Partnership with public agency upon agreeing to preserve and protect mitigation sites under a resource management plan.

In these instances, a site protection mechanism (e.g., conservation easement, resource management plan, etc.) would be established to preserve the site as a natural area in perpetuity. The contents of the applicable mechanism would affirm the long-term management strategy outlined in the mitigation plan and clarify responsibilities for each of the parties involved. Under SAMF, each project mitigation plan or site protection mechanism would clearly describe the conservation values being protected and the permitted/prohibited uses/activities for each project site.

Regardless of the legal mechanism protecting the mitigation site, SAWC or an identified partner in the project mitigation plan will be responsible for long-term management of the site. The long-term management strategy will include the following components:

1. Periodic review of specific needs for long-term sustainability of the project's benefits to the site and the surrounding watershed.
2. A plan to monitor and maintain the site that ensures project sustainability.
3. A long-term protection mechanism that has been approved by the DE.
4. When necessary, a stewardship management agreement. Mitigation projects may be conducted by SAWC on lands protected by easements held by a separate land trust entity. SAWC may either continue to assume responsibility for long-term management or delegate monitoring and/or management responsibilities to that land trust entity. However, it may be most advantageous or necessary to transfer responsibility for long-term management to a third party, e.g. where property owners request that a single entity hold the easement and provide long-term management. Prior to transferring such

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<sup>3</sup> The USACE, Alaska District has an example Long Term Management Plan that was provided to SAWC November 2016. SAWC will utilize the template provide by the USACE



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responsibility, a stewardship management agreement that describes how the third party will implement long-term management will be presented to the USACE. Any such transfer of responsibility shall not occur without approval from the USACE.

SAWC may assign its long-term management responsibilities for one or more of the SAMF mitigation sites to a third-party assignee, which will then serve as long-term steward in place of the sponsor. The identity of the assignee and the terms of the long-term management agreement between the SAWC and the assignee must be approved by the USACE following consultation with the IRT, in advance of assignment.

SAWC or a SAWC partner who has agreed to assume responsibility for the long-term management of a mitigation site may hold the long-term management funds, following approval by the USACE.

SAWC will remain responsible for complying with the provisions of this instrument throughout the operational life of the program, regardless of the ownership status of the underlying real property where mitigation sites are located, unless those responsibilities have been re-assigned. SAWC may transfer ownership of all or a portion of the mitigation sites' real property interest to another party, provided the USACE expressly approves the transfer in writing.

Upon execution of a long-term management agreement and the transfer within the long-term management account of the amount deemed necessary for that site, and upon meeting all performance standards for a given site, SAWC shall be relieved of all further long-term management responsibilities associated with the site for which responsibilities have been transferred, unless otherwise stated in the long-term management agreement.

## **11.0 FINANCIAL ARRANGMENTS FOR LONG-TERM MANAGEMENT**

SAMF will maintain a long-term management account (see above). The long-term management account will be held in reserve to fund long-term management of compensatory mitigation sites. Long-term management entails management of mitigation sites after performance standards have been achieved as well as management of the funding mechanisms.

Funds in the long-term management account are available for any SAMF mitigation site, unless transferred by SAWC to another approved entity, given certain conditions (e.g., the long-term management account is used only for those sites where all credits have been released to satisfy those advance credits that have been sold or transferred). The long-term management account will be funded by the credit fees associated with mitigation sites. Long-term financing mechanisms may include non-wasting endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments. SAWC will invest funds based on standards set in the long-term management agreement for each project. A report on investments will be in the program ledgers.

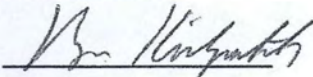


## E. SIGNATURE PAGE

IN WITNESS WHEREOF, the parties hereto have executed this In-Lieu Fee Program Instrument on the date herein below last written.

### PARTIES:

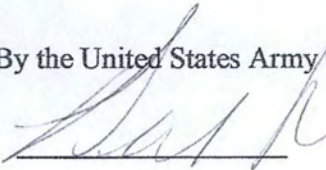
By the Sponsor:

  
Ben Kirkpatrick  
SAWC Board President  
Southeast Alaska Watershed Coalition

August 31, 2017

Date

By the United States Army Corps of Engineers:

  
David S. Hobbie

David S. Hobbie  
Regional Regulatory Chief  
Alaska District

9-7-17

Date

*[Revise signatory page as necessary to include all Parties signing]*



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## F. APPENDIX

### 1.0 SAMF Compensation Planning Framework for the Southern Alexander Archipelago (HUC 190101)

The Southern Alexander Archipelago compensation-planning framework explains how SAMF will use a watershed approach to select, secure and implement aquatic resource restoration, enhancement, and/or establishment in the service area that encompasses the Southern Alexander Archipelago.

#### a. The geographic service area

This service area consists of a single 6-digit HUC, the Southern Alexander Archipelago (HUC # 190101) excluding Canada. The Southern Alexander Archipelago encompasses approximately 13,592 square miles in Southeast Alaska. It includes all the biogeographic provinces within the Prince of Wales Island Complex sub-region, the Revilla Island/Cleveland Peninsula province, and the North and South Misty Fjords provinces. This service area is dominated by rounded mountains and hills, which provide a more gentle topography than the other service areas. Much of Southeast Alaska's karst lands occur in this service area on Prince of Wales Island, Kosciusko Island, Dall Island, Heceta Island, and Revillagigedo Island. A large portion of the mainland is protected within the Misty Fjords National Monument Wilderness.

#### b. A description of the threats to aquatic resources in the service area

This service area, particularly Prince of Wales Island, has been and continues to be impacted by timber harvest activities. Timber harvest, commercial fishing, and recreation/tourism have primarily driven development in the Southern Archipelago. Mining also has played a role in the past, and is still a component of the current economy. Many of the rural communities rely on subsistence fishing and hunting.

Future community and resource developments in this service area are likely to be similar to that which has occurred in the past. SAWC does not anticipate new types of development activities to produce unique or unusual impacts on aquatic resources not already experienced in Southeast Alaska. Thus, the types of historic impacts to aquatic resources discussed below are also those that are likely to occur in the future. An exception is the potential future development of one or more ocean kinetics (tidal) projects, which could lead to impacts to submarine and/or near-shore aquatic resources.

#### **Urbanization**

The U.S. Census Bureau defines two classifications of urban areas: an *urbanized area* is a densely settled area with a population of 50,000 or more, and an *urbanized cluster* is a densely settled area with a population between 2,500 and 50,000. All other areas are considered rural.

This service area contains 12 communities including Metlakatla, which is the only community in Alaska that is classified as an Indian Reservation under federal law. Ketchikan is the only community within this service area considered to be an urbanized cluster. The Ketchikan Gateway Borough Comprehensive Plan 2020 outlines the Borough's plan for future growth and



development. In this plan, the Borough has policies to support the location of hatcheries and seafood processors within the Borough, the development of the timber industry, the expansion of shipyard and repair facilities for deep-water vessels, the development of the existing port, and the growth of the tourism industry including the cruise ship and ecotourism sectors.

Craig, on Prince of Wales Island, is the second largest community in this service area and is the only rural community besides Metlakatla with a population over 1,000. The City of Craig's 2000 Comprehensive Plan outlines several areas for development of marine transportation including North Cove, South Cove, and False Island. False Island has also been slated for industrial development. The Crab Bay tidelands are called out as an area that will be protected. Other community priorities that will require mitigation include improving recreational opportunities, building and improving community facilities and construction of transportation infrastructure.

### ***Timber Harvest***

The timber industry is a major economic contributor in this service area. There are seven active mills, all on Prince of Wales Island. Two mills are in Craig and five are in Thorne Bay. The Viking Lumber Company in Craig is the largest mill in the region. Commercial sources of timber in this service area include the Tongass National Forest lands, the Southeast State Forest and other state lands identified in the Central/Southern Southeast Area Plan and the Prince of Wales Island Area Plan, Alaska Mental Health Trust Authority Forest Assets, and Native Corporation lands (Sealaska Corporation; Cape Fox Corporation; Shaan-Seet, Inc.; Kavilco, Inc.; Haida Corporation; and Klawock Heenya Corporation). Prince of Wales Island is currently at greatest risk of potential threats to aquatic resources from continued logging activities.

About 1,653 square miles of Tongass National Forest lands in this service area are designated for timber production. This is about 18 percent of Tongass lands within the Southern Alexander Archipelago. There is one proposed timber harvest on Tongass National Forest lands in this service area. The proposed Big Thorne Project includes harvest of 6,186 old growth forest and thinning of 2,299 acres of young growth forest, construction of 46.1 miles of new road and reconstruction of 36.6 miles of existing road.

The Southeast State Forest is a relatively new state forest that was established in 2010. It encompasses 48,472 acres of land located in southern Southeast Alaska. Most of the Southeast State Forest land occurs on Prince of Wales Island, with other parcels on Gravina, Heceta, Kosciusko, Revillagigedo, and Tuxekan Islands as well as on the mainland. Timber sales on state lands are offered on a five-year schedule. The current Five Year Forest Management Schedule goes through 2019.

The Alaska Mental Health Trust Authority has Forest Assets near Thorne Bay and Ketchikan. The Thorne Bay asset has 2,925 net operable acres.

Native Corporation surface rights in this service area are shown in Table 1. Sealaska Corporation has large timber holdings in this service area.



needs. Local governments also have transportation infrastructure priorities outlined in a local transportation plan or a comprehensive plan.

This service area has 22 transportation infrastructure projects programmed in the current STIP, most of which (12) are concentrated in Ketchikan. This trend will likely continue in the future, given that Ketchikan is the major hub for this service area.

The majority of these projects consist of rehabilitating existing infrastructure within the existing footprint, which limits impacts on adjacent resources. However, some improvements to existing highway infrastructure include widening or realigning road surfaces. In addition, some of the ferry terminal upgrades will require fill and placement of structures outside of the existing footprint. Such reconstruction projects will require mitigation.

The Gravina Access project is intended to provide a transportation link between Revillagigedo Island and Gravina Island. Currently, DOT&PF is looking at a variety of alternatives to provide access. There is also proposed new road infrastructure funded with state monies. The Ketchikan Shelter Cove Road project will construct 11 miles of new road from the end of Harriet Hunt Road to Shelter Cove Road on Carroll Inlet.

Two new proposed ferry terminal projects are in the current STIP for this service area. The Metlakatla/Annette Bay Ferry Terminal project will construct a new Alaska Marine Highway System (AMHS) ferry terminal to provide a Ketchikan – Metlakatla ferry service. A second new ferry terminal is proposed along the South Tongass Highway in Ketchikan that would be used for the Ketchikan – Metlakatla ferry service as well.

The status of DOT&PF projects in pre-construction and construction can be found in the Project Status Reports, which are available online at <http://dot.alaska.gov/sereg/projects/index.shtml>

Local governments in this service area are prioritizing gravel road resurfacing, widening shoulders, construction, and rehabilitation of non-motorized transportation infrastructure (sidewalks and bike paths). Some local governments are preparing for community growth by prioritizing extension of local road systems or construction of new roads to undeveloped lands as well as expansion of or upgrades to local ports and harbors.

### ***Hydroelectric Power/ Alternative Energy Facilities***

In Southeast Alaska, hydropower is currently the largest and most important producer of electricity from a renewable energy source. According to the Juneau Economic Development Council (JEDC) Southeast Alaska Economic Asset Map (2011), communities served by hydropower have some of the least expensive electricity rates in the state. With increased interest in replacing expensive fossil-fuel-powered generation with renewable energy resources, hydropower capacity will continue to expand. The Alaskan U.S. Senator Lisa Murkowski is sponsoring the Hydropower Improvement Act:



- Admiral Calder Calcium Carbonite Mine on Prince of Wales Island was owned by Sealaska but was purchased in 2005 by Tri-Valley. The mine is currently in care and maintenance status until a customer base is established.

### ***Tourism***

The largest component of the tourism industry is the cruise ship industry. The number of cruise ship passengers in Southeast Alaska increased by 14 percent between 2010 and 2013; it is anticipated that a new cruise ship passenger record will be reached in 2016 (Southeast Conference, 2014). Ketchikan is the only community in this service area capable of receiving cruise ships, and is a primary port for the cruise ship industry. According to the Juneau Economic Development Council (JEDC) Southeast Alaska Economic Asset Map (2011), Ketchikan saw a 45 percent increase in the numbers of cruise ship passengers between 2000 and 2010.

In addition to cruise ship passengers, Southeast Alaska accommodates 230,000 independent travelers. Independent travelers are drawn to the region for “nature-based” tourism. Residents also travel throughout the region to enjoy recreational opportunities (JEDC, 2011).

Nature-based tourism is particularly popular on Prince of Wales Island, bringing average revenue of \$2,600 per person. Ketchikan receives the second highest number of visitors to the Tongass National Forest, with flightseeing and remote-setting nature tours being the most popular activities (JEDC, 2011). New remote tourism lodges or developments to satisfy potential demand for ecotourism niche markets in the future could cause localized impacts to aquatic resources.

### ***Aquaculture***

Currently, salmon hatcheries for fish stock enhancement dominate the aquaculture industry in Southeast Alaska, and the footprint of this coastal infrastructure has been in place for decades. According to the Alaska Department of Fish and Game ([http://www.adfg.alaska.gov/static/fishing/PDFs/hatcheries/se\\_hatch.pdf](http://www.adfg.alaska.gov/static/fishing/PDFs/hatcheries/se_hatch.pdf)), there are six salmon hatcheries in this service area: two on Prince of Wales Island; two in Ketchikan; one in Neets Bay near Ketchikan; and one near Metlakatla. No new fish hatcheries are currently slated for Southeast Alaska. Freshwater aquaculture and the farming of marine finfish are prohibited in Alaska state waters. Although offshore fish farming has received some attention at the federal level in recent years, no current efforts are underway off Alaska.

Mariculture and aquaculture are relatively new to Southeast Alaska and have potential for expansion. Shellfish aquaculture projects potentially could occur anywhere in Southeast Alaska where growing, tending, and harvesting conditions for shellfish are favorable. Marine shellfish operations culturing oysters and clams are likely to increase as technology improves, shellfish farms become more profitable, and people are drawn to the remote lifestyle where few other economic opportunities exist. This service area has the most concentration of aquatic farms in Southeast Alaska. There are 32 shellfish farms, three shellfish nurseries, and one shellfish



will be able to provide input to SAWC on project site design, implementation and ecological performance standards.

**c. An analysis of historic aquatic resource loss in the service area**

To date there is no publicly available in-depth database documenting cumulative aquatic resource loss across Southeast Alaska. This type of data collection and analysis has not been conducted by any natural resource agency or conservation organization working in the region. In Southeast Alaska, the City and Borough of Juneau, though is not within this service area boundary, is the only community in Southeast Alaska that has an estimate of wetland impacts.

Historical data within this service area that documents aquatic resource loss includes: the Tongass National Forest Watershed Condition Framework (USFS, 2012), the USACE permitted impact data and the *Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska (TNC/Audubon 2011)*- which indicates that Prince of Wales Island has only 59 percent of original habitat remaining intact, and the highest cumulative risk to biodiversity and ecosystem values.

The strongest data supporting the need for SAMF is the USACE CWA Section 404 permitted impact data. 33 CFR 332.3(a)(2) states in pertinent part that "Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation." Preservation does not result in a gain of aquatic resource area or functions. SAWC believes that there is definitely a need for restoration in Alaska since the majority of compensatory mitigation has been preservation.

These three sources demonstrate that there has been loss to aquatic resources within this service area and specific watersheds have already been prioritized for restoration (see section e. of this Compensation Planning Framework).

**d. An analysis of current aquatic resource conditions in the service area(s), supported by an appropriate level of field documentation**

Much of the habitat values on the mainland within this service area are largely intact, in part due to the protection status of lands within the service area. Approximately 9,022 sq. mi. of this service area is within the Tongass National Forest (estimated from the USFS Land Use Designations data layer using ArcGIS). Approximately 40 percent (3,630.9 sq. mi.) of Tongass National Forest lands within this service area are classified as Wilderness Land Use Designations (LUDs). Most of this (3,337.5 sq. miles) is within the Misty Fjords National Monument Wilderness located on the mainland and part of Revillagigedo Island. Tongass land within Wilderness LUDs constitutes nearly 27 percent of this service area. Another 34.5 percent (3,108.45 sq. mi.) of Tongass National Forest lands are classified within Natural Setting LUDs. These areas constitute nearly 23 percent of this service area.



Table 2: Estimated miles of stream by process group within the service area. Estimated miles calculated using the SEAK Hydro Stream Process Groups data layer in ArcGIS.

Stream Process Group	Estimated stream length (miles)
Alluvial Fan	418.51
Estuarine	194.88
Floodplain	1,355.18
Glacial	512.94
Lake	1,620.00
High Gradient Contained	13,976.83
Moderate Gradient Contained	1,482.99
Moderate Gradient Mixed Control	1,793.62
Low Gradient Contained	198.80
Palustrine	814.37
Other	430.38
Unknown	5,719.85
Total	28,518.35

In total, the Southern Alexander Archipelago includes approximately 2,418 miles of anadromous streams and 55 square miles of anadromous lakes (estimated from the 2015 Anadromous Waters Catalog datalayer using ArcGIS). While this is only 9.5 percent of the reported total length of streams, some channel types (e.g. high gradient contained channels) have gradient and stream flow barriers that make them inaccessible to anadromous fish and, therefore, do not provide significant fish habitat. Unuk River is one of the highest producing watersheds in the region and is capable of supporting all salmon species. Anan Creek on the Cleveland Peninsula is one of the five most productive watersheds for pink salmon in the region and its watershed is protected by State of Alaska legislation.

The Southern Alexander Archipelago contains approximately 3,134 square miles of wetlands (Table 5).

Table 3: Estimated area of wetland types within the service area. Estimated area calculated using the National Wetland Inventory data layer in ArcGIS.

Wetland Type	Estimated Wetland Area (square miles)
Estuarine/Marine	148.75
Freshwater Emergent	632.05
Freshwater Forest/Shrub	2,132.00
Freshwater Pond	39.19
Lake	153.32
Riverine	27.83
Other	0.68
Total	3,133.82



Table 4: Estimated miles of coastline by coastal types within the service area. Estimated miles calculated using the ShoreZone data layer in ArcGIS. Modified from Table A-14 in the Alaska ShoreZone Coastal Habitat Mapping Protocol. Biological exposure categories were combined to estimate the mileage for each coastal type.

Dominant Structuring Process	Substrate Mobility	Coastal Type	Coastline (miles) by HUC
Wave Energy	Immobile	Rock, Rock & Sediment, or Sediment	1,372.37
	Partially Mobile	Rock & Sediment, or Sediment	5,111.67
	Mobile	Sediment	71.41
Fluvial/Estuarine		Estuary	762.09
Current Energy		Current-dominated	66.11
Glacial		Glacier	0.00
Anthropogenic		Impermeable	1.68
		Permeable	31.49
Total			7,416.82

The Stikine bioarea within the Southern Alexander Archipelago is limited to the Coronation and Warren Islands and northwest Prince of Wales Island. The Stikine bioarea is influenced by glacial, silty water and consists of a diversity of habitat types with moderate to low wave exposures. The Southeast Alaska – Craig bioarea includes the islands in southern Southeast Alaska including areas around Ketchikan, Prince of Wales Island, Dall Island, and southern Coronation Island. The Craig bioarea is characterized by a fully marine coast that has high species diversity and habitat. The Misty Fjords bioarea is located along the southern mainland and the west coast of Revillagigedo Island, which is characterized by a fjord landscape with bedrock-dominated coastline subject to low wave exposure. This bioarea has low species diversity.

On average, the Southern Alexander Archipelago has moderate biodiversity (average for HUC is 6.1 on a scale of 0 – 13; estimated from the coastal biodiversity index datalayer produced by The Nature Conservancy using ArcGIS). Areas with higher biodiversity (index of 6 or higher) include the western coasts of Heceta Island, Kosciusko Island, Suemez Island, and Dall Island; the northern coast of Prince of Wales Island; and the southwest coasts of Gravina, Annette and Duke Islands. The Southern Alexander Archipelago also has the second highest total coastline dominated by anthropogenic structures in the region at 33 miles.

Estuaries and mudflats are high-value habitat but are relatively rare within the region: mudflats are less than 1% and estuaries are 14% of the shoreline. According to the ShoreZone data, this service area has the second highest fluvial/estuarine coastline at 762 miles. However, according to the *Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska (TNC/Audubon 2011)*, this service area did not include any of the 10 largest estuaries in the region. The four largest estuaries in the Southern Alexander Archipelago are ranked in the top 50 largest estuaries in the region: the Salmon (ranked #34), Unuk (ranked #44), the Chickamin (ranked #48) and the Crab (ranked #49).



- San Alberto Bay-Frontal Ursua Channel
- 190101031402
- Trocadero Bay-Frontal Bucareli Bay
- Port Refugio-Frontal Ulloa Channel
- Bucareli Bay-Frontal Pacific Ocean
- Hetta Inlet-Frontal Cordova Bay
- Alder Cove-Frontal Cordova Bay
- Dunbar Inlet-Frontal Tlevak Strait
- Lake Seclusion-Frontal Kaigani Strait
- Kassa Inlet-Frontal Cordova Bay
- Klakas Inlet-Frontal Cordova Bay
- Coning Inlet-Frontal Cordova Bay
- Meares Island-Frontal Meares Passage
- Port Bazan-Frontal Pacific Ocean
- Berg Bay-Frontal Blake Channel
- Outlet North Fork Bradfield River
- Headwaters East Fork Bradfield River
- Outlet East Fork Bradfield River
- Mount Tyee-Bradfield River
- Bradfield Canal-Frontal Ernest Sound
- Frosty Creek
- Deer Island-Frontal Ernest Sound
- Emerald Bay-Frontal Ernest Sound
- Meyers Stream-Frontal Clarence Strait
- Bell Arm-Frontal Behm Canal
- Wolverine Creek
- Granite Creek
- Wadding Cove-Frontal Behm Canal
- Helm Bay-Frontal Behm Canal
- Wilson Arm-Frontal Smeaton Bay
- Fish Creek-Salmon River

In addition, the DEC has identified eight impaired waterbodies in this service area, seven of which are on Prince of Wales Island and Ward Cove near Ketchikan. The Prince of Wales impaired waters include four unnamed creeks that drain into Sweetwater Lake near Coffman Cove; Thorne Bay near the community of Thorne Bay; Salt Chuck Bay near a historic copper mine; and Fubar Creek between Klawock and Hydaburg.

Neither SAWC nor its partners have funded conceptual designs for the initial list of projects identified in SAWC's preliminary assessment of the service area. Therefore, the exact amount of linear feet of stream and/or acres of wetland restoration, enhancement and creation projects in this service area is difficult to summarize. However, the USFS has identified an estimated potential 102 miles of stream restoration and enhancement and 2700 acres of riparian wetland restoration and enhancement and 129 miles of estimated potential access to fish habitat via



gallery of GIS products; a ranking of ecological values among watersheds throughout the region in a watershed matrix; and a GIS database that provides a common inventory of ecosystem and habitat values that encompass lands throughout Southeastern Alaska.  
<http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/alaska/seak/era/cfm/Pages/default.aspx>

- *Ecological Forest Restoration in the Tongass National Forest (TWS/SEAWAAD Assessment 2012).*
- USFS Region 10 *Channel Type User Guide (Paustian et al 1992, updated 2010)*
- *Alaska's Anadromous Waters Catalog (ADF&G)*  
<http://www.adfg.alaska.gov/sf/SARR/AWC/>
- *Fish Passage Culvert Inventory (ADF&G and USFS)*  
<http://www.adfg.alaska.gov/index.cfm?adfg=fishpassage.database>
- *Southeast Alaska Impaired Waterbodies (DEC)* <http://dec.alaska.gov/water/index.htm>
- *ShoreZone* <http://alaskafisheries.noaa.gov/shorezone/default.htm>
- Total Maximum Daily Loads (TMDLs) for:
  - Thorne Bay – Wood Residues (2007)
  - Ward Cove – Biochemical Oxygen Demand (1994), and Residue and Dissolved Oxygen (2007)
- Local watershed plans/assessments including but not limited to:
  - Dog Salmon Creek Watershed Assessment Report (2008)
  - Forest and Freshwater Restoration Priorities (2008)
  - Kasaan Bay Watershed Management Plan (2005)
  - Klawock Watershed Assessment and Restoration Plan (2002)
  - Hetta and Eek Lake Habitat Mapping (2013)
  - Prince of Wales Island Unified Watershed Assessment (2014)

**To accomplish the second step** — *identify potential mitigation sites that can be efficiently implemented to generate credits and improve watershed conditions within the guidelines of the Final Rule* —

SAWC endorses the following prioritization strategy for the SAMF because of its step-wise approach to ensuring that each project meets the requirements of the Final Rule, and that sponsor and project partners have the capacity to carry out the technical aspects and provide stewardship actions over the long term.

**The SAMF Site Selection Decision-making Factors consist of the following six elements:**

1. **Potential to Meet the SAMF Goals**
2. **Project Appropriateness within a Watershed Context**
3. **Readiness/Feasibility**
4. **Project Lead Capacity**
5. **Cost Effectiveness**
6. **Other Benefits**

These six elements are explained below:



- c) Initial progress (e.g., planning, fundraising, contracting, site design, etc.).
- d) Likelihood that the proposed actions will achieve the anticipated ecological benefits and results.
- e) Completeness and feasibility of long-term stewardship and monitoring plan.
- f) Potential for adverse impacts (such as flooding or habitat loss) associated with the project.
- g) Conformance with any applicable USACE and state mitigation policy, guidance and permitting requirements, including appropriate financial assurances for various construction activity.

**4. Long Term Management Feasibility:** Assesses the extent to which the potential mitigation project meets the core program requirement *to provide for long-term management and/or stewardship by a responsible state or federal resource agency, or conservation organization.* Considerations include:

- a) Presence of qualified, capable conservation entity willing to manage and/or maintain the project.
- b) Level of support and involvement of other relevant agencies, organizations, and local community.
- c) Adequacy of long-term stewardship to ensure the project is sustainable over time and funding mechanism for the associated costs (e.g., endowment or trust).

**5. Cost Effectiveness:** Assesses the extent to which the potential mitigation project meets the program requirement *to represent an efficient use of funds expended given the condition, location and relative appraised values of properties.* Considerations include:

- a) Clarity and detail of budget submitted to SAWC.
- b) Sufficiency of funds available in the applicable biophysical region including matching funds if necessary.
- c) Potential to develop a substantial number of credits in a biophysical region where there is a robust demand for the credit type.

**6. Social Benefits:** Assesses the potential for a mitigation project to support recreational access, scenic enhancements, economic activity, or other contributions to the community or region where the project is located. Review applicable watershed plans to identify objectives that could be accomplished within the scope of a mitigation project and/or identify opportunities to improve the productivity of rare or highly valued fish and/or wildlife species.

**g. An explanation of how any preservation objectives identified above satisfy the criteria for use of preservation in 33 CFR 332.3(h)**

At this time the SAMF does not have a programmatic goal to perform preservation as a form of compensatory mitigation.



- Partnering with Chilkoot Indian Association to support the development of a Wetland Management Plan with the Tribe and Haines Borough. Haines AK, January 1, 2013- 2016.
- *Southeast Alaska Watershed Symposium*, Juneau AK, November 2013. Partner: Southeast Alaska Fish Habitat Partner
- *The Southeast Alaska Mitigation Fund- Mitigation Planning in Your Community*, Public meetings with Borough, Tribes, Local Agency staffers, Community Members. February 2015- November 2015
  - Juneau AK, Wrangell AK, Ketchikan AK, Sitka AK, Klawock AK, Kake AK, Hoonah AK
- *Southeast Alaska Stream and Watershed Restoration Training*, Craig, AK, May 2016. Trainers: US Forest Service Restoration Cadre from Oregon.
- *Planning for Compensatory Mitigation*, Haines AK, September 2016. Chilkoot Indian Village

In an effort to enlist other potentially interested parties in the Southeast Alaska region, SAWC will continue to conduct outreach to Southeast community land use/planning officials, non-profit organizations, tribes, municipalities, landowners, native corporation land managers, and other resource and real estate professionals.

SAMF intends to have a similar structure to successful ILF programs in Washington, Oregon, New Hampshire, Virginia and Maine. These ILF programs invest in and capitalize on the expertise of organizations and consultants operating in the program service area to conduct various elements of the mitigation projects (See Exhibits 4.0 for more information on public and private stakeholder involvement in the SAMF ILF program).

SAWC invites questions or comments and provides a link to the SAWC website ([www.alaskawatershedcoalition.org](http://www.alaskawatershedcoalition.org)) for the public and agencies alike to review draft documents and provide comments to the USACE Chair and the IRT during the public review process.

**i. A description of the long-term protection and management strategies for activities conducted by the in-lieu fee program sponsor**

See section 10.0 of this document.

**j. A strategy for periodic evaluation and reporting on the progress of the program in achieving SAMF goals and objectives, including a process for revising the planning framework as necessary**

SAWC will annually report to the USACE and the IRT on credits sold and offsets gained through compensatory mitigation projects under SAMF. SAWC will be obligated to submit an annual report that will document in-lieu fees received and disbursed from its ILF program



Southeast Alaska. Thus, the types of historic impacts to aquatic resources discussed below are also those that may occur in the future. One exception to this might be the future development of one or more ocean kinetics (tidal) projects in Southeast Alaska, which could lead to potential impacts to submarine and/or near shore aquatic resources heretofore not experienced in Southeast Alaska.

### ***Urbanization***

The U.S. Census Bureau defines two types of urban areas: an *urbanized area* as a densely settled area with a population of 50,000 or more, and an *urbanized cluster* is a densely settled area with a population between 2,500 and 50,000. All other areas are considered rural.

This service area encompasses 10 communities. Sitka is the only community within this service area considered to be an urbanized cluster. Sitka's 2007 Comprehensive Plan outlines the community's plan for future growth and development. According to the comprehensive plan, one of the primary opportunities for the community's growth is the re-development of the Sawmill Cove Industrial Park, including a multi-use dock to accommodate fisheries and cruise ships. Commercial and industrial growth is anticipated to continue in the industrial park. Another opportunity is expanding into the independent tourism sector and shore-based excursions. Development of lodges is anticipated on the islands in Sitka Sound. Residential growth is anticipated along Sawmill Creek Road, the Indian River valley, and the University of Alaska South Benchlands. Sitka is also hoping to make the community more accessible via construction of new roads and/or expanded ferry service.

Petersburg and Wrangell are the second and third largest communities in this service area in terms of population. The Draft 2015 Petersburg Borough Comprehensive Plan indicates that there are prospects for expansion of shore-based fish processing and related marine support services in the Scow Bay area and growth in tourism-related businesses such as lodging, dining and shopping. Petersburg is also interested in encouraging timber harvest and timber associated milling, processing and timber products as well as supporting emerging markets such as seaweed farming, soil composting, and producing fertilizers from fish waste. In terms of residential growth, the Draft 2015 Comprehensive Plan prioritizes identifying locations where construction of new roads could provide access to buildable land for new housing developments. According to Wrangell's 2010 Comprehensive Plan, community priorities include a new boat harbor, boat launch and associated parking for Wrangell East, regional solid waste facility, new industrial park, and affordable senior housing.

### ***Timber Harvest***

The timber industry is a major economic contributor in this service area. Commercial sources of timber in this service area include the Tongass National Forest, Alaska Mental Health Trust Authority Forest Assets, and Native Corporations (Sealaska Corporation; Kootznوو Inc.; Huna Totem Corporation; Kake Tribal Corporation; and Shee Atika Inc.). There are four active mills- two in Hoonah and two in Petersburg.



Table 1. Surface rights/ownership of Native Corporations within the service area. Estimated area calculated using the Surface Ownership map service data layer provided by U.S. Forest Service in ArcGIS.

Corporation	Estimated Area (square miles)
Sealaska Corp	137.82
Goldbelt Inc.	53.34
Kootznoowoo Inc.	11.76
Huna Totem Corporation	36.00
Kake Tribal Corporation	38.04
Shee Atika Inc.	40.91
Haida Corp.	0.10
Cook Inlet Region Inc.	0.01

### *Transportation*

In the Central Alexander Archipelago service area, the transportation infrastructure includes paved and unpaved roads, ferry terminal facilities, float plane docks, airports/airstrips, and small boat harbors. Communities rely heavily on air and marine transportation, as most communities are not connected by road systems.

This service area has the following existing transportation infrastructure:

- Approximately 3,357 miles of road, of which approximately 673 miles have been decommissioned;
- 34 bridges;
- 9 ferry terminals;
- 16 airports; this includes:
  - 5 standard airports;
  - 8 seaplane bases; and
  - 3 other/unclassified airports;
- 34 harbors

Road mileage was estimated from the transportation map server provided by the U.S. Forest Service and the other transportation facilities were estimated from the transportation facilities datalayer provided by the Alaska Department of Transportation and Public Facilities (DOT&PF) using ArcGIS.

Transportation infrastructure is maintained by the DOT&PF for state facilities and by local governments for the local facilities. The U.S. Forest Service also maintains roads on the Tongass National Forest.

The DOT&PF Alaska Statewide Transportation Improvement Program (STIP) is the State's four-year program for transportation infrastructure preservation and development. Projects in the STIP have partial or full federal funding and are likely to be implemented in the planning period. The STIP planning period used was 2013 - 2015.



continue to expand. The Alaskan U.S. Senator Lisa Murkowski is sponsoring the Hydropower Improvement Act.

Sitka, Petersburg, Wrangell, Pelican and Port Alexander are the only communities in this service area currently served by hydroelectric facilities. Electrical transmission lines create a sub-regional grid connecting Petersburg, Wrangell and Ketchikan (outside of this service area). The Nature Conservancy developed an inventory of hydropower sites and power lines, both existing and proposed, from information obtained from Alaska Industrial Development and Export Authority (AIDEA). This inventory, available through the Southeast Alaska GIS Library, identified 29 proposed hydroelectric facilities.

### ***Mining***

Southeast Alaska has extensive mineral resources. The region's mineral deposits include gold, silver, lead, zinc, copper, molybdenum, platinum, limestone, marble, uranium, and rare earth minerals. There are also rock, sand and gravel resources for use in construction. In 2014, mining comprised 5 percent of the region's economy.

According to the U.S. Geological Survey, Alaska Resource Data File, Southeast Alaska has approximately 96 mineral occurrences, 263 prospects and 44 mines. Mineral occurrences are those unexplored occurrences of minerals of economic interest. Prospects are sites where some development works has occurred. Mines are sites with current and past production.

Many mining claims never become fully operational mines, and it is difficult to predict which claims will eventually become operational. The current high price of metals is encouraging additional mineral exploration at or near existing mines, as well as re-opening historic mining sites. Mining activity in the Southeast region is largely contingent on worldwide demand and the price of silver, gold or base metal commodities. At this time the demand for metal resources continues to grow across the world.

In addition to mining for metals and rare earth elements, mining for gravel and sand is also a common activity in the region. Gravel and sand are usually mined from major river floodplains, talus slopes, glacial moraines, and beach deposits.

Significant mineral deposits in this service area include Yakobi Island and Hirst Chichagof on Chichagof Island, and Woewodski and Zarembo Prospects, near Petersburg and Wrangell.

### ***Tourism***

The largest component of the tourism industry is the cruise ship industry. The number of cruise ship passengers in Southeast Alaska increased by 14 percent between 2010 and 2013, and it is anticipated that a new cruise ship passenger record will be reached in 2016 (Southeast Conference, 2014).

In the Central Alexander Archipelago service area, Sitka, Petersburg, Wrangell and Hoonah/Icy Strait Point currently have facilities capable of receiving cruise ships.



SAWC used past restoration efforts, the expertise held by mitigation fund partners, and the *Aquatic Habitat Rehabilitation, Enhancement, and Mitigation in Juneau Alaska: Inventory and Case Studies* (Hudson, Seifert 2012) to inform the list of possible mitigation project types to be carried out.

The types of projects listed below have been supported by natural resource managers and carried out by SAWC and mitigation fund project partners. In addition, there is information pertaining to project design and monitoring for these types of mitigation projects. Resource managers agree that there is enough scientific research and information, as well as expertise and experience in this region, to carry out the following types of mitigation projects. In general, the program sponsor will pursue the following types of mitigation projects:

- 1. Stream bank bioengineered stabilization**
- 2. Stream channel creation or reconfiguration**
- 3. Plant/enhance riparian vegetation**
- 4. Flood plain restoration/reconnection**
- 5. Wetland restoration, enhancement and establishment**
- 6. Fish habitat restoration and/or enhancement (e.g. instream structures)**
- 7. Fish passage restoration and/or enhancement**

Each mitigation site will have a detailed mitigation plan. These mitigation plans will outline specifically the techniques that will be used to carry out each type of mitigation. In this way, the IRT, other agencies, interested and/or concerned stakeholders and members of the general public will be able to provide input to SAWC on project site design, implementation and ecological performance standards.

**c. An analysis of historic aquatic resource loss in the service area(s)**

To date there is no publicly available in-depth database that shows the cumulative aquatic resource loss across Southeast Alaska. This type of data collection and analysis has not been conducted by any natural resource agency and/or conservation organization working in the region. In Southeast Alaska, the City and Borough of Juneau, though is not within this service area boundary, is the only community in Southeast Alaska that has an estimate of wetland impacts.

Historic data within this service area that documents aquatic resource loss includes: the Tongass National Forest Watershed Condition Framework, the USACE 404 permitted impact data, the *Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska (TNC/Audubon 2011)*- which indicates that Kupreanof and Mitkof Islands have 72.5 percent of original habitat remaining intact. These two islands have the highest cumulative risk for loss of biodiversity and ecosystem values in the service area. East Baranof and East Chichagof Islands, while only having 63.5 and 72 percent, respectively, of their



confidential list of potential mitigation projects within these watersheds has been submitted to the USACE.

Localized degradation and loss of aquatic resources has occurred near communities and mine sites within the service area. The Alaska Department of Environmental Conservation (DEC) has identified six impaired waterbodies in this service area: Katlian River, Granite Creek, Silver Bay, and Herring Cove near Sitka; East Point Fredrick near Hoonah; and Klag Bay near Chichagof. Silver Bay, Herring Cover, and East Point Fredrick were former log transfer facilities; Klag Bay is impaired due to historic mining operations; Granite Creek is being impacted by gravel mining operations and material storage.

The Central Alexander Archipelago has approximately 24,187 miles of streams (Table 4). The USFS Region 10 *Channel Type User Guide* provides a method for categorizing a watershed's stream network into basic fluvial process groups. Fluvial process groups help understand the interrelationship between the landscape, erosion and depositional processes, channel morphology, and fish and riparian habitat. High gradient contained channels are by far the most common, contributing nearly 60 percent of the total stream miles in the service area. Moderate gradient mixed control channels are the second most common, but contribute only about 9 percent of the total stream miles. Moderate gradient contained channels and floodplain channels were a significant proportion of channel types on the all the islands. The mainland has a greater proportion of glacial channels. Palustrine channels are a significant proportion of channel types in the Stikine watershed.

Table 2: Estimated miles of stream by process group within the service area. Estimated miles calculated using the SEAK Hydro Stream Process Groups data layer in ArcGIS.

Stream Process Group	Estimated stream length (miles)
Alluvial Fan	876.26
Estuarine	499.34
Floodplain	1,843.00
Glacial	504.05
Lake	809.76
High Gradient Contained	14,292.00
Moderate Gradient Contained	1,510.40
Moderate Gradient Mixed Control	2,184.30
Low Gradient Contained	274.98
Palustrine	796.90
Other	595.87
Unknown	6.50
Total	24,186.84

In addition, this service area has two of the most highly productive, diverse anadromous waterbodies in the region: the Taku and Stikine Rivers. In total, this service area includes approximately 2,762 miles of anadromous streams and 30 square miles of anadromous lakes (estimated from the 2015 Anadromous Waters Catalog datalayer using ArcGIS). While this is only 11 percent of the reported total length of streams, some channel types (e.g. high gradient



Chichagof and Baranof Islands, Admiralty Island, Kuiu Islands, Kupreanof Island, Wrangell Island, Etolin Island and a portion of the mainland coast. Glacial, silty water and diverse habitat types characterize this bioarea.

The Icy Strait and Lynn Canal bioareas within the Central Alexander Archipelago are limited to the northern coast of Chichagof Island and Admiralty Island. The Icy Strait bioarea coastline is dominated by low to moderate wave-exposed coastlines influenced by glacial waters with wide, sediment-dominated beaches and fringing salt marshes as common coastal habitats. Lynn Canal is characterized by a fjord landscape dominated by bedrock and a dense Blue Mussel bioband.

The Central Alexander Archipelago has an average biodiversity index of 5.81 on a scale of 0 – 13 (estimated from the coastal biodiversity index datalayer produced by The Nature Conservancy using ArcGIS). Areas with higher biodiversity (index of 6 or higher) include the eastern coastline of Chichagof and Baranof Islands, nearly the entire Admiralty Island coastline, and the western coast of Kuiu Island. The Central Alexander Archipelago has the highest total coastline dominated by anthropogenic structures in the region at nearly 48 miles.

Estuaries and mudflats are high-value habitat but are relatively rare within the region: mudflats are less than 1% and estuaries are 14% of the shoreline. According to the ShoreZone data, this service area has the largest amount of fluvial/estuarine coastline when compared to the Southern Alexander Archipelago (HUC # 190101) and Gulf of Alaska/Northern Alexander Archipelago (HUCs# 190104 and 190103 respectively). According to the *Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska* (TNC/Audubon 2011), this service area has high estuary values due to the complex topography, shallow bathymetry, and the presence of large mainland rivers. This service area has five of the 10 largest estuaries in the region: Stikine River (ranked #1 at 21,737 acres), Duncan (ranked #3 at 9,446 acres), Rocky Pass (ranked #5 at 5,823 acres), Taku River (Ranked #8 at 4518 acres) and the Gambler (ranked #10 at 3,009 acres). This service area also includes 26 other estuaries that rank in the top 50 largest estuaries.

Throughout Southeast Alaska, the marine shoreline supports abundant populations of shellfish, fish, and wildlife in a complex mosaic of geophysical and biological features where uplands, freshwater, estuarine, and marine environments interface (Schoen and Dovochnin 2007). These combined features support primary productivity from plankton, algae, kelp, eelgrass and marsh grass; shellfish production from Dungeness crab, clams and shrimp; fish production from herring, flatfish, rockfish and salmon; and a diverse ecosystem that includes many species of marine birds and marine mammals. The communities of Southeast Alaska rely on these coastal resources to support significant components of their economies dependent on subsistence, sport and commercial fishing, hatcheries, tourism, recreation, and wildlife viewing.

**e. A statement of aquatic resource goals and objectives for the service area, including a description of the general amounts, types, and locations of aquatic resources the program will seek to provide**



- Redoubt Lake
- Redoubt Bay-Frontal Sitka Sound
- Sitka Sound-Frontal Pacific Ocean

In addition to this list, DEC has identified six impaired waterbodies in this service area: Katlian River, Granite Creek, Silver Bay, and Herring Cove near Sitka; East Point Fredrick near Hoonah; and Klag Bay near Chichagof, Silver Bay, Herring Cover, and East Point Fredrick. Klag Bay is impaired due to historic mining operations; Granite Creek is being impacted by gravel mining operations and material storage.

Neither SAWC nor its partners have funded conceptual designs for the initial list of projects identified in SAWC's preliminary assessment of the service area. Therefore, the exact amount of linear feet of stream and/or acres of wetland restoration, enhancement and creation projects in this service area is difficult to summarize. However, the USFS has identified an estimated potential 119 miles of stream restoration and enhancement and 3172 acres of riparian wetland restoration and enhancement and 123 miles of estimated potential access to fish habitat via culvert remediation and stream habitat restoration. Based on a summarization of past aquatic resource restoration, enhancement and creation projects in this service area over a 3yr period 31.18 miles of stream and have been restored and 220 acres of wetlands.

#### **f. A prioritization strategy for selecting and implementing compensatory mitigation activities**

This section provides an overview of how the program sponsor has selected and prioritized an initial list of potential mitigation sites. This section also provides an overview of how SAWC will select and prioritize sites in the future under this instrument. The compensatory mitigation activities that will be carried out are stream and wetland restoration, enhancement and establishment. Confidential supporting information, in accordance with 33 CFR 332.8(n)(2), of specific activities has been submitted to the USACE.

SAWC has developed a prioritization and site selection strategy that is based on a watershed approach that is specific to Southeast Alaska. SAWC works to ensure each mitigation site meets the requirements of the Final Rule. SAWC's prioritization strategy for selecting and implementing compensatory mitigation sites was a two-step process. The first step was to identify top priority watersheds within the service area using a watershed approach based on existing assessments and other sources. The second step was to identify potential mitigation sites that could be efficiently implemented to generate credits and improve watershed conditions.

An initial prioritization effort has been carried out by SAWC- in which the following methodology was followed. The results of this prioritization effort are the list of watersheds listed in the above section of the CPF (section e.). This list of mitigation activities submitted to the USACE will occur within these prioritized watersheds.

The following provides an overview of how SAWC has selected and prioritized sites (as described in confidential supporting information, in accordance with 33 CFR 332.8(n)(2)) and it



SAWC endorses this prioritization strategy for the SAMF because of its step-wise approach to ensuring that each project meets the requirements of the Final Rule, and that sponsor and project partners have the capacity to carry out the technical aspects and provide stewardship actions over the long term.

**The SAMF Site Selection Decision-making Factors consist of the following six elements:**

- **Potential to Meet the SAMF Goals**
- **Project Appropriateness within a Watershed Context Project**  
**Readiness/Feasibility**
- **Project Lead Capacity**
- **Cost Effectiveness**
- **Other Benefits**

These six elements are explained below:

**1. Potential to Meet SAMF Goals:** Assesses the extent to which the potential mitigation project meets the core program *requirements to restore, enhance, or establish aquatic resources that have been prioritized using a watershed approach, best available science and/or by USACE*. All project sites must be protected with an appropriate site protection mechanism. Considerations include:

- a) The sustainability of the proposed conservation action (restoration, enhancement, and/or establishment):
- b) The degree to which the mitigation project offsets the functional benefits of impacted aquatic resources identified as a priority in the biophysical region:
- c) Inclusion of upland areas- where necessary to ensure the long-term viability of aquatic resources:
- d) The functional lift to be provided by the mitigation project (e.g., proposed improvement in habitat quality, contribution to functioning biological systems, water quality, etc.):
- e) Other specific conservation objectives developed for each biophysical region or watershed, as described in watershed plans, municipal management plans, statewide conservation objectives, as long as those objectives support third-party compensatory mitigation for permitted impacts regulated under Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act of 1899.

**2. Project Appropriateness within a Watershed Context Project:** Assesses the extent to which the potential mitigation project meets the core program requirement *to consider the location of a potential project relative to focus areas for land conservation or habitat preservation identified by a state agency, or other regional or municipal plans*.

Considerations include:

- a) Presence within or proximity to habitat areas of statewide conservation significance or other natural resource priority areas;



b) Sufficiency of funds available in the applicable biophysical region including matching funds if necessary;

c) Potential to develop a substantial number of credits in a biophysical region where there is a robust demand for the credit type.

**6. Social Benefits:** Assesses the potential for a mitigation project to support recreational access, scenic enhancements, economic activity, or other contributions to the community or region where the project is located. Review applicable watershed plans to identify objectives that could be accomplished within the scope of a mitigation project and/or identify opportunities to improve the productivity of rare or highly valued fish and/or wildlife species

**g. An explanation of how any preservation objectives identified above satisfy the criteria for use of preservation in 33 CFR 332.3(h)**

At this time the SAMF does not have a programmatic goal to perform preservation as a form of compensatory mitigation.

**h. A description of any public and private stakeholder involvement in plan development and implementation including coordination with federal, state, tribal and local aquatic resource management and regulatory authorities**

SAWC will ensure there is both public and private stakeholder involvement throughout the entire process from mitigation site selection to the long-term management of the sites. Based on the extensive needs assessments conducted by SAWC over the past three years, there is no *one* organization, agency, and/or environmental consultant operating in Southeast Alaska that understands the requirements listed in the Final Rule *and* holds the experience and expertise to conduct all stages of restoration, enhancement and/or establishment projects from site selection to long-term monitoring.

SAWC developed a *draft* Prospectus, which is not required under the Final Rule, in order to build knowledge and awareness of SAWC staff, advisory board, board of directors, and IRT members. SAWC has incorporated feedback, concerns, and questions into the prospectus, draft instrument and instrument. In addition, over the past three years, SAWC has organized significant outreach and public education opportunities in order to understand better the diverse spectrum of stakeholder perspectives of aquatic resource mitigation and what strategies and processes a third-party mitigation program provider should consider in order to respond to the unique aquatic resource mitigation challenges and opportunities that exist throughout Southeast Alaska. SAWC has reached over 300 southeast Alaskan natural resource professionals through the following events:

1. *Scoping Discussion: Wetland and Aquatic Resource Mitigation*, Juneau AK October 21, 2011. 43 participants; including 5 USACE staff and 20 other agency staffer. Presenters: USACE, FS and USFWS Staff and WA mitigation experts. (SAWC, 2011).



SAWC invites questions or comments and provides a link to the SAWC website ([www.alaskawatershedcoalition.org](http://www.alaskawatershedcoalition.org)) for the public and agencies alike to review draft documents and provide comments to the USACE Chair and IRT during the public review process.

**i. A description of the long-term protection and management strategies for activities conducted by the in-lieu fee program sponsor**

See section 10.0 of this document.

**j. A strategy for periodic evaluation and reporting on the progress of the program in achieving SAMF goals and objectives, including a process for revising the planning framework as necessary**

SAWC will annually report to the USACE and the IRT on credits sold and offsets gained through compensatory mitigation projects under SAMF. SAWC will be obligated to submit an annual report that will document in-lieu fees received and disbursed from its ILF program account, income generated through investments, and expenditures for compensatory mitigation projects and administrative costs. SAWC also anticipates meeting regularly with the USACE in consultation with the IRT to concertedly evaluate any or all aspects of the program.

As part of these overall evaluations, SAWC would examine its efforts in achieving the previously identified goals and objectives of the SAWC ILF program. At that time this framework and other documents associated with this ILF can be reviewed.

### **3.0 SAMF Compensation Planning Framework for the Northern Alexander Archipelago (HUC 1901030) and the Gulf of Alaska (HUC 190104)**

The Northern Alexander Archipelago and the Gulf of Alaska compensation planning framework (CPF) explains how SAMF will use a watershed approach to select, secure and implement aquatic resource restoration, enhancement, and/or establishment in the service area that encompasses the Northern Alexander Archipelago combined with the Gulf of Alaska. Information about aquatic resources in the service area is fairly limited, especially in the Gulf of Alaska- HUC 190104.

**a. The geographic service area, including a watershed-based rationale for the delineation of the service area**

The U.S. Geological Service identifies two 6-digit Hydrologic Unit Codes (HUCs) within the service area (190103 Northern Alexander Archipelago and 190104 Gulf of Alaska) shown in Figure 1, excluding Canada. Together, these HUCs encompass approximately 20,955 square miles in Southeast Alaska. The Northern Alexander Archipelago and Gulf of Alaska are grouped into a single service area to accommodate the compensatory mitigation needs of this area. These HUCs encompass biogeographic provinces within the northern mainland sub-region. While climatic conditions and ecosystems may vary throughout the service area, these areas have similar ecological conditions. This service area is dominated by active glacial and recently de-



housing complex; port expansion for trans-shipment; and upgrades to the White Pass & Yukon Route Railroad.

The City of Gustavus' 2005 Strategic Plan outlines several projects in which the community identifies as priorities. This includes replacing the dock with a deep port for ferry and freight service; building a new boat harbor/marina; constructing a multipurpose community building; constructing a rifle/archery range; creating a public campground; building bike paths; and relocating the landfill and including sewage disposal, hazardous waste, and scrap metal storage.

The City and Borough of Yakutat is projected to have a steady decline through 2042. However, the CBY's 2010 Comprehensive Plan includes goals and policies to develop new infrastructure to allow for community growth. New infrastructure priorities include facilities to support seafood processing, commercial fishing and mariculture; sand and gravel extraction; dock facilities; access to and within the Western Borough for a variety of resource development activities; alternative energy sources including tidal/wave energy and biomass electrical generation; recreation and tourism; public utilities and services; and transportation.

### ***Timber Harvest***

This service area has had relatively low rates of timber harvest in the past. Commercial sources in this service area include the Tongass National Forest, the Haines State Forest, Alaska Mental Health Trust Authority Forest Assets, University timberlands, and Native Corporations (Sealaska Corporation; Chugach Alaska Corporation; Yak-Tat Kwaan, Inc.; Klukwan, Inc.; and Goldbelt, Inc.).

Currently, there are no planned timber sales on Tongass National Forest Lands within this service area. The Haines State Forest has 42,000 of its 260,000-acre multiuse state forest designated for timber harvest. The Haines State Forest timber sales are offered on a five-year schedule. The current Five Year Forest Management Schedule goes through 2018. The annual allowable harvest for the Haines State Forest is 5.88 million board feet.

The Alaska Mental Health Trust Authority Forest Assets are located near Camp Yakataga and Haines. The Camp Yakataga assets include 4,940 net operable acres. The Haines assets are in three separate blocks with a total of 308 net operable acres. Most of the harvest of University timberlands has focused on the Cape Yakataga area and averages from 10 to 25 million board feet.

Native Corporation surface rights in this service area are shown in Table 1. Yakutat and Yak-Tat Kwaan Village Corporation are exploring biomass energy that would require timber harvest of Corporation lands.



recommended in the SATP may or may not be developed in the future. Local governments also have transportation infrastructure priorities outlined in a local transportation plan or a comprehensive plan.

The Gulf of Alaska-Northern Alexander Archipelago service area has 39 transportation infrastructure projects programmed in the current STIP, most of which (27) are concentrated in Juneau. This trend will likely continue in the future, given the population and the extent of the road system in these communities.

The majority of these projects consist of rehabilitating existing infrastructure within the existing footprint, which limits impacts on adjacent resources. However, some improvements to existing highway infrastructure include widening or realigning road surfaces, which could impact adjacent resources. In addition, some of the ferry terminal upgrades would require fill and placement of structures outside of the existing footprint. Such reconstruction projects could require mitigation.

Juneau Access is the only proposed new road infrastructure project proposed by the DOT&PF in this service area. Juneau Access is not only programmed in the STIP but was also identified as a priority in the 2014 SATP. Juneau Access would require construction of 50.6 miles of new road and a ferry terminal near Katzechin River.

The status of DOT&PF projects in pre-construction and construction can be found in the project status reports, which are available online at <http://dot.alaska.gov/sereg/projects/index.shtml>

Local governments in this service area are prioritizing gravel road resurfacing, widening shoulders, construction and rehabilitation of non-motorized transportation infrastructure (sidewalks and bike paths). Some local governments are also prioritizing extension of local road systems or constructing new roads to undeveloped lands to allow for community growth. Expansion or upgrades of local ports and harbors is also a priority.

### ***Hydroelectric Power/ Alternative Energy Facilities***

In Alaska, hydropower is currently the largest and most important producer of electricity from a renewable energy source. According to the Juneau Economic Development Council (JEDC) Southeast Alaska Economic Asset Map (2011), communities served by hydropower have some of the least expensive electricity rates in the state. With increased interest in replacing expensive fossil-fuel-powered generation with renewable energy resources, hydropower capacity will continue to expand. The Alaskan U.S. Senator Lisa Murkowski is sponsoring the Hydropower Improvement Act.

All communities in this service area, with the exception of Yakutat, are currently served by existing hydroelectric facilities. There are 8 existing hydroelectric facilities in this service area. Electrical transmission lines connect sub-regional grids in Haines and Skagway, and Juneau and Greens Creek Mine on Admiralty Island (outside of this service area). However, there is still potential to increase hydroelectric capacity. The Nature Conservancy developed an inventory of



- Palmer Project, Haines. This mineral exploration operation is located near Haines Alaska. Mining exploration is occurring on a contiguous block of land encompassing 340 federal unpatented mining claims and extending across approximately 9,200 acres. In 2013, a large Japanese smelting company, invested 2 million dollars to support Constantine's 2014 field season. This enabled Constantine to bolster its mineral exploration and mine development activities. The company is currently seeking a 404 permit and will continue to need mitigation to offset its impacts to aquatic resources
- Greens Creek Project, Admiralty Island: This is one of the largest producing silver mines in the world. Exploration efforts are ongoing along the highly prospective 27-square-mile land package. Greens Creek is actively seeking a 404 permit and is having difficulty finding available and appropriate mitigation credits to meet its unavoidable impacts.
- Kensington/Jualin: The Kensington underground gold mine and associated milling facilities are located within the Berners Bay Mining District on the east side of the Lynn Canal about 45 miles north-northwest of Juneau, Alaska. The project is wholly owned and operated by Coeur Alaska, Inc. The two adjoining claims account for over 10,000 acres.
- Herbert Gold Project: this project is located near the Herbert Glacier in Juneau, Alaska. This project is in the exploration phase.

### ***Tourism***

Juneau, Haines, Skagway, and Gustavus depend on tourism as a major component of their economies. The largest component of the tourism industry is the cruise ship industry. Juneau, Haines, and Skagway are all cruise ship destinations with Skagway alone receiving nearly a million passengers a year. Cruise ships do not dock in Gustavus, but they do travel into Glacier Bay.

The number of cruise ship passengers in Southeast Alaska increased by 14 percent between 2010 and 2013, and it is anticipated that a new cruise ship passenger record will be reached in 2016 (Southeast Conference, 2014). According to the Juneau Economic Development Council (JEDC) Southeast Alaska Economic Asset Map (2011), between 2000 and 2010 Juneau and Skagway had a 37 and 24 percent increase in cruise ship passengers, respectively, while Haines had an 83 percent decrease.

The infrastructure necessary to accommodate the ships and the growing number of shore-based excursions are likely to impact aquatic resources that will require mitigation. Skagway is currently in the planning stages of a port expansion to accommodate cruise ships and mineral exportation.

In addition to cruise ship passengers, Southeast Alaska accommodates 230,000 independent travelers. In 2010, the number of independent travelers increased by 2 percent in Juneau. Independent travelers are drawn to the region for nature-based tourism. Residents also travel



that there is enough scientific research and information, as well as expertise and experience in this region, to carry out the following types of mitigation projects. In general, the program sponsor will pursue the following types of mitigation projects:

- 1. Stream bank bioengineered stabilization**
- 2. Stream channel creation or reconfiguration**
- 3. Plant/enhance riparian vegetation**
- 4. Flood plain restoration/reconnection**
- 5. Wetland restoration, enhancement and establishment**
- 6. Fish habitat restoration and/or enhancement (e.g. instream structures)**
- 7. Fish passage restoration and/or enhancement**

Each mitigation site will have a detailed mitigation plan. These mitigation plans will outline specifically the techniques that will be used to carry out each type of mitigation. In this way, the IRT, other agencies, interested and/or concerned stakeholders and members of the general public will be able to provide input to SAWC on project site design, implementation and ecological performance standards.

#### **c. An analysis of historic aquatic resource loss in the service area(s)**

To date there is no publicly available in-depth database that shows the cumulative aquatic resource loss across Southeast Alaska. This type of data collection and analysis has not been conducted by any natural resource agency and/or conservation organization working in the region. Juneau is the only community that has an estimate on wetland loss that has resulted from community development. According to Adamus Resource Assessment, Inc. (1987), approximately 33 percent of Juneau's wetlands (those present in 1948) were filled by 1984 for an annual wetland loss rate of 0.9 percent per year. However, Juneau is the largest community in the region and experienced rapid growth in the 1960s and 1970s. Therefore, this is not likely representative of the service area as a whole.

Some of the most complete documentation of historic aquatic resource loss data within this service area includes: the Tongass National Forest Watershed Condition Framework (USFS, 2012), the USACE permitted impact data and the *Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska* (TNC/Audubon 2011).

The strongest data supporting the need for SAMF is the USACE CWA Section 404 permitted impact data. 33 CFR 332.3(a)(2) states in pertinent part that "Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation." Preservation does not result in a gain of aquatic resource area or functions.



Table 2: Estimated miles of stream by process group within the service area. Estimated miles calculated using the SEAK Hydro Stream Process Groups data layer in ArcGIS.

Stream Process Group	Estimated stream length (miles)		
	HUC 190104	HUC 190103	Total
Alluvial Fan	27.44	153.63	181.07
Estuarine	65.23	34.98	100.2
Floodplain	912.93	262.38	1,175.31
Glacial	192.03	258.45	450.48
Lake	1,024.71	578.29	1,603.00
High Gradient Contained	534.20	1,813.33	2,347.53
Moderate Gradient Contained	33.10	177.90	211.00
Moderate Gradient Mixed Control	34.55	163.46	198.01
Low Gradient Contained	---	13.93	13.93
Palustrine	1,045.22	148.59	1,193.81
Other	10.01	96.61	106.62
Unknown	4,148.30	4,066.88	8,215.18
Total	8,027.70	7,768.44	15,796.14

In addition, this service area has the most highly productive, diverse anadromous waterbodies. Several systems near Yakutat, including the Tatshenshini River and Situk River; and the Chilkat River near Haines are among the top producers of salmon in the region. In total, this service area includes approximately 2,770 miles of anadromous streams and 65 square miles of anadromous lakes (estimated from the 2015 Anadromous Waters Catalog datalayer using ArcGIS). While this is only 17.5 percent of the reported total length of streams, some channel types (e.g. high gradient contained channels) have gradient and stream flow barriers that make them inaccessible to anadromous fish and, therefore, do not provide significant fish habitat.

This service area contains approximately 1,084 square miles of wetlands (Table 5). Juneau is the only community that has data on wetland loss that has resulted from community development. According to Adamus Resource Assessment, Inc. (1987), approximately 33 percent of Juneau's wetlands (those present in 1948) were filled by 1984 for an annual loss rate of 0.9 percent per year.



Table 4: Estimated miles of coastline by coastal types within the service area. Estimated miles calculated using the ShoreZone data layer in ArcGIS. Modified from Table A-14 in the Alaska ShoreZone Coastal Habitat Mapping Protocol. Biological exposure categories were combined to estimate the mileage for each coastal type.

Dominant Structuring Process	Substrate Mobility	Coastal Type	Coastline (miles) by HUC		
			190103	190104	Total
Wave Energy	Immobile	Rock, Rock & Sediment, or Sediment	115.47	100.08	215.55
	Partially Mobile	Rock & Sediment, or Sediment	526.07	440.74	966.81
	Mobile	Sediment	46.69	390.74	437.43
Fluvial/Estuarine		Estuary	196.80	239.12	435.98
Current Energy		Current-dominated	0.56	1.24	1.80
Glacial		Glacier	3.29	13.27	16.56
Anthropogenic		Impermeable	1.40	0.04	1.44
		Permeable	28.06	1.63	29.69
Total			918.40	1186.86	2105.26

The Yakutat bioarea, located entirely within the Gulf of Alaska (HUC 190104), is characterized by an exposed, west-facing coastline that is dominated by mobile, high energy sediment beaches. This coastal bioarea has the largest portion of coastline influenced by glacial processes and the least amount of shoreline dominated by anthropogenic structures in the region. On average, this area has a low biodiversity index (average for HUC is 3.18 on a scale of 0 – 13; estimated from the Coastal Biodiversity Index datalayer produced by The Nature Conservancy using ArcGIS). Areas with higher biodiversity (index of 6 or higher) include the coast in and around Yakutat, the Russel and Nunatak Fiords, Lituya Bay, and the coast between Graves Harbor and Palma Bay within Glacier Bay National Park.

The Icy Strait and Lynn Canal bioareas are located entirely within the Northern Alexander Archipelago (HUC 190103). The Icy Strait bioarea coastline is dominated by low to moderate wave exposed coastlines influenced by glacial waters with wide, sediment-dominated beaches and fringing salt marshes as common coastal habitats. The Lynn Canal is characterized by a fjord landscape dominated by bedrock and a dense Blue Mussel bioband. On average, this area has a low biodiversity index (average for HUC is 4.78 on a scale of 0 – 13; estimated from the Coastal Biodiversity Index datalayer produced by the Nature Conservancy using ArcGIS). Areas with higher biodiversity (index of 6 or higher) include the Chilkoot Inlet coast in and around Haines, Berner's Bay and portions of lower Lynn Canal near the tip of Admiralty Island, and Excursion Inlet.

Estuaries and mudflats are high-value habitat but are relatively rare within the region: mudflats are less than 1% and estuaries are 14% of the shoreline. According to the ShoreZone data, this service area has the least fluvial/estuarine coastline when compared to the Southern and Central Alexander Archipelago (HUCs 190102 and 190101 respectively), although estuaries comprise a larger proportion of the mapped coastline in this service area at 21 percent. According to the *Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska* (TNC/Audubon 2011, this service area has five of the 10 largest



Fish Creek, Douglas, Juneau  
Peterson Hill, Juneau  
Jordan Creek, Juneau  
Vanderbilt Creek, Juneau  
Allison Pond, Juneau  
Chilkat River, Haines  
Mudd Bay, Haines  
Southeast Alaska State Fair Property, Haines  
Porcupine Pond, Haines  
Haines Highway- Seven Mile, Haines  
Haines Townsite- Haines  
Pullen Creek, Skagway  
Outlet Endicott River  
Lower Lace River  
Cowee Creek  
Mendenhall River  
Yang-Webster Peak  
Fish Creek  
Beardslee River-Frontal Lynn Canal  
Ansley Island-Frontal Icy Strait  
Yakutat Bay-Frontal Gulf of Alaska  
Upper Ahrnklin River  
Antlen River  
Middle Ahrnklin River  
Seal Creek  
Situk River  
Ustay River-Akwe River  
Tawah Creek  
Lost River



Develop Watershed Restoration Action Plans; 4) Implement Integrated Suites of Projects; 5) Track Restoration Accomplishments; 6) Verify and Monitor Accomplishments.  
<http://www.fs.fed.us/publications/watershed/>

- *A Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in Southeast Alaska (TNC/Audubon 2011)*. The assessment includes a Map Gallery of GIS products; a ranking of ecological values among watersheds throughout the region in Watershed Matrix; and a GIS database that provides a common inventory of ecosystem and habitat values that encompass lands throughout Southeastern Alaska.  
<http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/alaska/seak/era/cfm/Pages/default.aspx>
- *Ecological Forest Restoration in the Tongass National Forest (TWS/SEAWAAD Assessment 2012)*.
- *USFS Region 10 Channel Type User Guide (Paustian et al 1992, updated 2010)*
- *Alaska's Anadromous Waters Catalog (ADF&G)*  
<http://www.adfg.alaska.gov/sf/SARR/AWC/>
- *Fish Passage Culvert Inventory (ADF&G and USFS)*  
<http://www.adfg.alaska.gov/index.cfm?adfg=fishpassage.database>
- *Southeast Alaska Impaired Waterbodies (DEC)* <http://dec.alaska.gov/water/index.htm>
- *ShoreZone* <http://alaskafisheries.noaa.gov/shorezone/default.htm>
- Local watershed plans/assessments including but not limited to:
  - *Pullen Creek Action Plan*
  - *Taiya Inlet Stream Condition Assessment*
  - *Haines Area Fish Passage Inventory*
  - *Restoration, Enhancement and Mitigation Projects for Juneau's Watersheds*
  - *The Peterson Hill Creek Watershed Mapping and Conservation Plan*
  - *Auke Lake Watershed Assessment*
  - *Vanderbilt Creek Watershed Recovery and Management Plan*
  - *Jordan Creek Urban Hydrography Mapping and Stormwater Management Plan*

**To accomplish the second step** — *identify potential mitigation sites that can be efficiently implemented to generate credits and improve watershed conditions within the guidelines of the Final Rule.*

**The SAMF Site Selection Decision-making Factors** consist of the following six elements:

- **Potential to Meet the SAMF Goals**
- **Project Appropriateness within a Watershed Context**
- **Project Readiness/Feasibility**
- **Project Lead Capacity**



- a) Documentation of landowner willingness to participate in the proposed project, including conveying a conservation easement or fee title, with conservation covenants, to the property (for projects not on public or private conservation lands);
- b) Soundness of the technical approach presented in conceptual plan for the proposed project;
- c) Initial progress (e.g., planning, fundraising, contracting, site design, etc.);
- d) Likelihood that the proposed actions will achieve the anticipated ecological benefits and results;
- e) Completeness and feasibility of long-term stewardship and monitoring plan;
- f) Potential for adverse impacts (such as flooding or habitat loss) associated with the project;
- g) Conformance with any applicable USACE and state mitigation policy, guidance and permitting requirements, including appropriate financial assurances for various construction activity;

**4. Long Term Management Feasibility:** Assesses the extent to which the potential mitigation project meets the core program requirement *to provide for long-term management and/or stewardship by a responsible state or federal resource agency, or conservation organization.* Considerations include:

- a) Presence of a qualified, capable conservation entity willing to manage and/or maintain the project;
- b) Level of support and involvement of other relevant agencies, organizations, and local community;
- c) Adequacy of long-term stewardship to ensure the project is sustainable over time and funding mechanism for the associated costs (e.g., endowment or trust).

**5. Cost Effectiveness:** Assesses the extent to which the potential mitigation project meets the program requirement *that a project represent an efficient use of funds expended given the condition, location and relative appraised values of properties.* Considerations include:

- a) Clarity and detail of budget submitted to SAWC;
- b) Sufficiency of funds available in the applicable biophysical region including matching funds if necessary;
- c) Potential to develop a substantial number of credits in a biophysical region where there is a robust demand for the credit type.

**6. Social Benefits:** Assesses the potential for a mitigation project to support recreational access, scenic enhancements, economic activity, or other contributions to the community or region where the project is located. Review applicable watershed plans to identify objectives that could



- *Introduction to Wetland Functional Assessments and Delineations to support Permitting Process*, Haines AK, August 12, 2011. Trainers: USACE Staff
- American Water Resources Association, Alaska Section 2012 Annual Conference. Juneau March 2012. *Developing a Third Party Aquatic Resource Mitigation Program and the Need for Science to Inform Credible Mitigation in Southeast Alaska*.
- *Wetland Functional Assessment Training: WESPAK-SE*, Haines AK September 20, 2012. Trainer: Dr. Paul Adamus
- Partnering with Chilkoot Indian Association to support the development of a Wetland Management Plan with the Tribe and Haines Borough. Haines AK. January 1, 2013- 2016.
- *Southeast Alaska Watershed Symposium*, Juneau AK, November 2013. Partner: Southeast Alaska Fish Habitat Partnership.
- *The Southeast Alaska Mitigation Fund- Mitigation Planning in Your Community*, Public meetings with Borough, Tribes, Local Agency staffers, Community Members. February 2015- November 2015
  - Juneau AK, Wrangell AK, Ketchikan AK, Sitka AK, Klawock AK, Kake AK, Hoonah AK
- *Southeast Alaska Stream and Watershed Restoration Training*, Craig, AK, May 2016. Trainers: US Forest Service Restoration Cadre from Oregon.
- *Planning for Compensatory Mitigation*, Haines AK, September 2016. Chilkoot Indian Village

In an effort to enlist other potentially interested parties in the Southeast Alaska region, SAWC will continue to conduct outreach to Southeast community land use/planning officials, non-profit organizations, tribes, municipalities, landowners, native corporation land managers, and other resource and real estate professionals.

SAMF intends to have a similar structure to successful ILF programs in Washington, Oregon, New Hampshire and Maine. These ILF programs invest in and capitalize on the expertise of organizations operating in the program service area to conduct various elements of the mitigation projects (See Appendix 4.0 for more information on public and private stakeholder involvement in the SAMF ILF program).

SAWC invites questions or comments and provides a link to the SAWC website ([www.alaskawatershedcoalition.org](http://www.alaskawatershedcoalition.org)) for the public and agencies alike to review draft documents and provide comments to the USACE Chair and the IRT during the public review process.



#### 4.0 SAMF Restoration Cost Tool (RCT)

##### Restoration Cost Tool for Southeast Alaska In-Lieu Fee Compensatory Mitigation Program

**-- A First Approximation, August 31, 2013—**

By Steve J Paustian, Sitka Hydro Science LLC

This report was developed for the *Southeast Alaska Watershed Coalition (SAWC)* as a component of the *In-Lieu Fee Program Instrument*. *Sitka Hydro Science LLC* was tasked with developing a *Restoration Cost Tool (RCT)* database for Southeast Alaska by compiling information on wetland restoration projects completed between 2008 and 2012. The RCT will provide:

1. Necessary information for SAWC to develop a method for determining mitigation costs, draft fee schedule and mitigation instrument credit values based on the actual costs to provide the required mitigation.
2. Support to SAWC for transparency and efficacy in explaining the determination of cost for each mitigation project to the public, resource agencies, Section 404 permit applicants and the regulated public in Southeast Alaska.
3. A method to inform regulatory agencies, SAWC, and the regulated public of the true cost of aquatic resource mitigation. If used up-front in project planning and permitting this database will support informed resource mitigation.

The USACE Final Rule for *Compensatory Mitigation for Losses of Aquatic Resources* mandates that cost of mitigation credits incorporates a “full-cost accounting”- all of the costs association with the restoration, establishment, enhancement, and/or preservation of aquatic resources- approach (Final Rule 2008).

The RCT database incorporates these elements in the restoration cost breakdown columns. Most of the initial data submitted for recent restoration projects in Southeast Alaska only included a total cost. More detailed cost information was available for three large restoration projects, specifically the Klawock River estuary restoration, and the Sitkoh River and Twelvemile Creek watershed scale restoration projects. It is interesting to note that costs for planning, permitting/NEPA and design activities for these projects ranged between 18% and 25% of total project cost. Restoration practitioners should be encouraged to track expenditures for current and future restoration projects using the RCT cost categories.

Another key objective of this effort was to compile a representative sampling of recent restoration projects across six of the 8-digit Hydrologic Units that encompass the majority of



stream restoration activities are typically measured by the length of the treated stream segment and number of habitat structures constructed. For purposes of the RCT we utilize a metric of “net aquatic area improved” as a means to normalize treatment cost data between large and small streams. Aquatic habitat area is calculated by multiplying the length of the treated stream segment in feet by approximate channel width in feet. Average cost of all stream restoration activities is \$1.26 per ft<sup>2</sup> with a low of \$0.38 per ft<sup>2</sup> for Sitkoh River and a high value of \$2.61 per ft<sup>2</sup> for a habitat restoration on two small tributaries to Twelvemile Creek (Note: The Jordan Creek sediment removal project was considered to be an outlier due to the very short stream segment treated — 450 linear ft. — resulting in a cost per square foot of \$18.78).

The cost of collecting and staging restoration material at treatment sites are key factors influencing large-scale stream restoration costs. The cost of the Sitkoh River habitat improvement work was artificially low because surplus logs were available from a commercial thinning project, thus greatly reducing the cost of wood collection and transport for this project. Conversely, the more costly (\$2.26 per ft<sup>2</sup>) Twelvemile Creek restoration project required helicopter transport of logs and whole trees to construct engineered log jam structures. It is interesting to note that unit costs also varied significantly for small stream, hand crew projects. Cost variability may be due to the number or density of constructed habitat structures and on-site availability of materials (rocks and logs) needed for construction.

Road and Stream Crossing Improvements. Three road storage and decommissioning projects from the Stanley Creek, Twelvemile Creek and Margaret Creek watershed restoration efforts are included in the RCT data. Road rehabilitation activities typically cover a range of treatment measures including road fill stabilization, surface drainage controls such as water bars and removal of stream crossing structures including culverts that are barriers to fish passage. It is extremely difficult to define generic measures to characterize project benefits associated with sediment mitigation and runoff attenuation. However, aquatic habitat improvements attributed to fish barrier culvert removal is summarized in the RCT data set.

The Twelvemile road decommission project that used blasting methods to remove stream crossing structures (log and CMP culverts) on abandoned road segments, is very cost effective at \$0.19 per ft<sup>2</sup> of aquatic habitat restored. The Stanley Creek road storage project involved use of heavy equipment to construct drainage and erosion control structures, as well as removal of problem culverts, represents a more typical forest road mitigation approach. Aquatic habitat restoration outcomes associated with the Stanley road storage project cost approximately \$1.09 per ft<sup>2</sup>.

Cost of replacing fish barrier culverts with fish friendly stream crossing structures averaged \$2.63 per ft<sup>2</sup> (ranging from \$0.65 to \$5.53). The cost of culvert replacement on average is twice as costly as in-stream habitat structures, based on unit area of aquatic habitat improved.

Intertidal/Coastal Restoration. The Klawock estuary project conducted by The Nature Conservancy and other local stakeholders is the only project submitted that focused on coastal wetland restoration concerns. Objectives of this project were to improve wetland functions for



partner involvement and funding from The Nature Conservancy, National Forest Foundation, and the National Fish and Wildlife Foundation.

In both watersheds, over 60% of streamside (or riparian) conifer stands were subjected to clearcut harvest in the flood plain bottomlands. Riparian young growth forest thinning treatments (225 acres in Sitkoh and 76 acres in Twelvemile) represent a long-term investment in improved riparian/riverine function with a primary goal of restoring large wood recruitment potential from riparian areas associated with key salmon habitat. Stream habitat improvement and channel reconfiguration treatments were a central focus of both watershed restoration plans. Primary restoration objectives included channel and flood plain stabilization, and construction of engineered logjam habitat structures along approximately 2 miles of main-stem flood plain channels. An equivalent amount of salmon habitat improvements was attributed to restoration outcomes each of these two watersheds. The Sitkoh watershed had fewer road related concerns. Most unneeded road segments were restored prior to development of a Watershed Restoration Plan. The Twelvemile Creek restoration plan, however, identified 15 miles of upland and flood plain road segments needing restoration due to surface drainage, erosion/sedimentation and fish passage concerns.

Conclusions and Recommendations. This version of the Restoration Cost Tool (RCT) provides preliminary cost data needed to develop a mitigation fee schedule for Southeast Alaska aquatic restoration projects (Table 2). Although the RCT incorporates only a limited set of data for recent restoration projects, it does provide a realistic and transparent picture of cost breakdowns associated with key project components. With additional data input for cost and project accomplishments, the RCT framework is expected to meet all objectives defined for this facet of the Southeast Alaska Mitigation Fund Prospectus.

Follow-up work should include:

1. Restoration partners should commit to tracking future projects expenditures using the *Restoration Cost Breakdown* categories in the RCT.
2. Restoration partners should also put more emphasis on compiling information on restoration project results and outcomes including the basic *Treatment Measures* in the RCT. They should also consider developing a more in-depth catalog of restoration results similar to the reporting framework for Sustainable Salmon Fund projects.
3. Additional large stream habitat restoration information should be incorporated into the RCT, including Harris River and Saginaw Creek project data.
4. Additional data from numerous culvert replacement, road storage and decommission projects completed on federal, state and private forest lands over the last five years should be collected
5. The RCT data is heavily skewed to Riparian/Riverine areas. The database should be expanded to include restoration projects associated with Freshwater Forest, Freshwater Non-Forest, and Coastal wetland types.



### **5.0 SAMF Stream and Wetland Credit Debit Method**

For a complete copy of the SAMF's Stream and Wetland Credit Debit Method please visit SAWC's website and or contact SAWC program manager.



## **Wetland and Stream Credit-Debit Methods Southeast Alaska Mitigation Fund**

*Version 2.0  
October 2016*

The Southeast Alaska Mitigation Fund is  
an in-lieu fee aquatic resources mitigation program  
sponsored by the;

Southeast Alaska Watershed Coalition  
PO Box 1992  
Wrangell, AK 99929  
[alaskawatershedcoalition.org](http://alaskawatershedcoalition.org)



## Attachments

Attachment A: Tier II Reference Metrics by Channel Process Group and Channel Type (Tucker and Caouett 2008)

## Tables

Table 2-1.	Individual functions and values calculated by WESPAK-SE For non-tidal wetlands, and their groupings.....
Table 2-2.	Existing individual functions and values calculated by WESPAK-SE for the Porcupine Pond mitigation site .....
Table 2-3.	WCDM functional gain worksheet .....
Table 2-4.	Time lag and risk factor tables .....
Table 2-5.	WCDM functional loss worksheet .....
Table 3-1.	Stream functions, metrics, and assessment tools .....
Table 3-2.	Field metrics and associated SAMF SCDM scores for bank-to-height ratio and width to depth ratio.....
Table 3-3.	Scores assigned to SCDM metrics based upon USFS Tier II reference data .....
Table 3-4.	Riparian Plant Association Characteristics.....
Table 3-5.	Existing and projected metric scores for the Pat Creek mitigation site and design .....
Table 3-6.	SCDM functional gain worksheet .....

## Figure

Figure 3-1.	Hierarchical framework of stream functions .....
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## Acronyms and Abbreviations

ADFG	Alaska Department of Fish and Game
AWC	Anadromous Waters Catalog
CBJ	City and Borough of Juneau
ILF	In-lieu fee
IRT	Inter-agency Review Team
RIBITS	Regulatory In lieu fee and Bank Information Tracking System
SAMF	Southeast Alaska Mitigation Fund
SAWC	Southeast Alaska Watershed Coalition
SCDM	Stream Credit Debit Method
SEAL Trust	Southeast Alaska Land Trust
TWC	Takshanuk Watershed Council
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFS	U.S.D.A Forest Service
WESPAK-SE	Wetland Ecosystem Service Protocol – Southeast Alaska
WCDM	Wetland Credit Debit Method



## 1. Introduction

This document describes the wetland credit debit method (WCDM) and the stream credit debit method (SCDM) for the Southeast Alaska Mitigation Fund (SAMF) In Lieu Fee (ILF) mitigation program. SAMF offers third-party compensatory mitigation options for permitted impacts regulated under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The SAMF ILF Program will sell both non-tidal wetland credits and stream credits. A credit (also referred to as a unit of functional gain) represents the ecological lift of aquatic function/s at either a wetland or stream site following a mitigation action (creation, restoration, and/or enhancement). Credit calculations are based on the difference between ecological function/s at the site following the mitigation action (projected conditions) and the existing site conditions:

$$\Delta = \text{projected conditions (after mitigation)} - \text{existing conditions}$$

A debit (also referred to as a unit of functional loss) represents the ecological loss of aquatic function/s following a permitted impact to an aquatic resource. Debit calculations are based on the difference between the ecological function/s of the existing site and the condition following the impact (projected conditions):

$$\Delta = \text{existing conditions} - \text{projected conditions (after impact)}$$

The SAMF method then applies the factors or time lag, risk, areal/linear extent. There is neither a wetland nor a stream credit generation method - for restoration, enhancement, or creation- in Southeast Alaska. Additionally, the U.S. Army Corps of Engineers (USACE) Alaska District has only very recently established agency guidance for calculating aquatic resource credits for mitigation sites and debits at the permitted impact sites. SAMF's methods described in this document utilizes this new guidance (USACE 2016). The Southeast Alaska Watershed Coalition (SAWC) has collaborated with organizational partners, including SAWC's Inter-Agency Review Team (IRT), Southeast Alaska Land Trust (SEAL Trust), The Nature Conservancy Virginia Chapter - Virginia ILF program, Herrera LLC, Sitka Hydro Science LLC, Paul Adamus, and CH2M Hill to develop this process for calculating wetland and stream credit methods at SAMF mitigation sites.

These wetland and stream credit debit calculation methods utilize the best available science - peer-reviewed, regionally specific assessment tools and datasets in Southeast Alaska. These methods meet the requirements of the 2008 Federal Rule on compensatory mitigation. They incorporate USACE, IRT comments and recommendations and glean the most appropriate resources and guidance from other USACE Districts across the country.

The SAMF credit debit calculation methods adopt the adaptive management approach. In other words, refinements to the SAMF methods are anticipated and will be amended through a modification of the instrument once SAWC has evaluated the application of these methods upon program approval and the implementation of compensatory mitigation. The WCDM is based on the *Wetland Ecological Services Protocol for Alaska-Southeast* (WESPAK-SE) version 2 (Adamus 2015), to represent the gain or loss of function that would result from a permitted



## **2. Overview - Wetland Credit Debit Method**

The purpose of the wetland credit debit calculation method (WCDM) is to calculate wetland credits at SAMF mitigation sites, and wetland debit at USACE permitted sites.

The three primary goals of the SAMF wetland credit-debit method are:

- 1) Provide SAMF with the ability to generate mitigation credits for restoration, enhancement, and/or creation of wetlands.
- 2) Establish a regionally relevant mitigation credit generation method that is function based and utilizes Dr. Paul Adamus' Wetland Ecosystem Service Protocol-Southeast Alaska (Adamus 2015).
- 3) Maximize transparency and efficiency when comparing the debits at the permitted impact site to the credits at the SAMF mitigation site.

### **2.1 Assessment tool: WESPAK-SE**

The SAMF uses the Wetland Ecosystem Service Protocol – Southeast Alaska (WESPAK-SE) version 2 as the tool for the WCDM. WESPAK-SE is a standardized method for conducting rapid assessments of wetland functions and values. WESPAK-SE has been under development for several years by Dr. Paul Adamus, the Southeast Alaska Land Trust (SEAL Trust), and the City and Borough of Juneau. It is the same tool that SEAL Trust will use for their preservation-based in-lieu fee program in Southeast Alaska. WESPAK-SE is a regionally specific (for southeast Alaska) adaptation of the Oregon Rapid Assessment Protocol, which has been used by USACE Portland District since 2009 for all wetlands permitting and mitigation. WESPAK-SE has been tested for repeatability in southeast Alaska and uses data from statistically sampled calibration sites (119 sites for non-tidal wetlands) to calculate scores. A description of how calibration sites are used to calculate scores is provided in the next section.

WESPAK-SE consists of a user manual, Microsoft Excel spreadsheet forms for conducting field and office-based assessments, and Microsoft Excel spreadsheets that calculate individual and group scores. The WESPAK-SE assessment comprises approximately one-half day collecting and assessing GIS and existing information, and an additional approximate one-half day assessing conditions in the field. The WESPAK-SE assessor answers various subjective questions that are used by models in WESPAK-SE to calculate 18 ecosystem function scores and 19 ecosystem value scores (Table 2-1). The WESPAK-SE manual provides a description of functions and values. The SAMF method uses all 18-function scores and 2 of the value scores. All 18 function scores have a corresponding value score, except “carbon sequestration (CS)”. The 2 value scores used by the SAMF method are the only value scores that do not have a corresponding function score. Therefore, the SAMF method prioritizes functional lift over value lift, as defined by WESPAK-SE.



Group functions and values	Individual functions and values and (codes)	Function Score	Value Score
1. Hydrologic	1. Surface water storage (WS)	Yes*	Yes
2. Water quality	2. Carbon sequestration (CS)	Yes*	No
	3. Nitrate removal and retention (NR)	Yes*	Yes
	4. Phosphorous retention (PR)	Yes*	Yes
	- Sediment and toxicant retention and stabilization (SR)	Yes*	Yes
3. Aquatic support	- Aquatic Invertebrate Habitat (INV)	Yes*	Yes
	- Organic Nutrient Export (OE)	Yes*	Yes
	- Stream Flow Support (SFS)	Yes*	Yes
	- Streamwater Cooling (WC)	Yes*	Yes
	- Streamwater Warming (WW)	Yes*	Yes
4. Fish	- Anadromous Fish Habitat (FA)	Yes*	Yes
	- Resident Fish Habitat (FR)	Yes*	Yes
5. Aquatic habitat	- Amphibian Habitat (AM)	Yes*	Yes
	- Waterbird Feeding Habitat (WBF)	Yes*	Yes
	- Waterbird Nesting Habitat (WBN)	Yes*	Yes
6. Terrestrial habitat	- Native Plant Habitat (PH)	Yes*	Yes
	- Pollinator Habitat (POL)	Yes*	Yes
	- Songbird, Raptor & Mammal Habitat (SBM)	Yes*	Yes
7. Social	- Public Use (PU)	No	Yes*
	- Subsistence (Subsis)	No	Yes*

**Table 2-1.** Individual functions and values calculated by WESPAK-SE for non-tidal wetlands, and their groupings. Items marked with an asterisk (\*) are used by the SAMF WCDM described in this document.



If a raw score turns out to be higher than the maximum score for the calibration sites, that score is set to 10. Similarly, if a raw score turns out to be lower than the minimum score for the calibration sites, that score is set to 0. Table 2-2 shows a scoring sheet of existing individual functions and values calculated by WESPAK-SE for the Porcupine Pond mitigation site in Haines, Alaska. This wetland restoration site, described in Appendix A, has been identified by the Takshanuk Watershed Council (TWC), as a potential mitigation project. TWC is a community-based non-profit watershed council operating in Haines AK.



Group scores are then normalized using group scores for the 119 non-tidal calibration sites following the same procedure described in Step 1. This is done to be consistent with converting the calculated group scores to the 0 to 10 scoring scale. The normalized group scores are shown in Table 2-3. The WESPAK-SE and the SAMF WCDM calculators perform all calculations. The WCDM calculator is shown in Appendix A for the Porcupine Pond mitigation site.

**Step 3     Conduct a WESPAK-SE assessment of projected conditions on the mitigation site**

Repeat the WESPAK-SE assessment on the mitigation site. This time, use best professional judgment to project wetland conditions after completion of the mitigation activities. Mitigation activities include the restoration or enhancement of existing wetlands, or the creation of new wetlands.

This assessment of projected conditions should be done only after completion of the design of the mitigation activities, and consideration should be made for that design. Ideally, the mitigation design will utilize the results from the WESPAK\_SE assessment of existing conditions to identify functions that are most likely to be lifted from mitigation activities.

**Step 4     Roll-up projected group scores**

Repeat Step 2 for the projected scores calculated in Step 3. Table 2-3 shows the normalized group scores for the existing and projected mitigation site conditions.

**Step 5     Calculate net functional gain based upon the differences between projected and existing group scores**

The functional gain per acre for each of the 7 groups shown in Table 2-3 is the difference between the projected and existing group scores. The net functional gain per acre for the mitigation site is the sum of the 7 group functional gains.



Year	Time lag factor
<= 1	1.0000
2	1.0170
3	1.0341
4	1.0518
5	1.0696
6-10	1.0876
11-15	1.1805
16-20	1.2805
21-25	1.3873
26-30	1.5015
31-35	1.6233
36-40	1.7532
41-45	1.8917
46-50	2.0485
51-55	2.1962
> 55	2.3292

	None			Moderate				High	
Risk factor	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00

**Table 2-4.** Time lag and risk factor tables (from USACE 2016)

The net functional gain per acre calculated in Step 5 is based on the normalized 0 to 10 scores used by WESPAK-SE. Because the time lag and risk factors apply for scores between 0 and 1, the net functional gain per acre calculated in Step 5 is divided by 10. The following formulas are then used:

$$\text{Adjusted net functional gain per acre} = \frac{\text{net functional gain per acre} / 10}{\text{time lag} * \text{risk}}$$

$$\text{Credits} = \text{adjusted net functional gain per acre} * \text{projected site acres}$$



## **Step 2     Roll-up existing group scores**

The 20 individual scores are then organized into the 6-group function and 1-group value scores as shown in Table 2-1. The group scores are not a simple average. Group scores are organized in a manner to provide extra weight to the highest individual score in each group by using the following formulas:

$$\text{Group function score} = \frac{\text{average of all individual function scores in that group}}{2} + \frac{\text{maximum individual function score in that group}}{2}$$

$$\text{Group value score} = \frac{\text{average of all individual value scores in that group}}{2} + \frac{\text{maximum individual value score in that group}}{2}$$

Group scores are then normalized using group scores for the 119 non-tidal calibration sites following the same procedure described in Step 1. This is done to be consistent with converting the calculated group scores to the 0 to 10 scoring scale. Up to this point in the SAMF method, the WESPAK-SE and SAMF calculators perform all calculations.

## **Step 3     Conduct a WESPAK-SE assessment of projected conditions (after impact/construction has occurred) on the permitted site**

Repeat the WESPAK-SE assessment on the permitted site. This time, use best professional judgment to project wetland conditions that will exist after the permitted impact.

## **Step 4     Roll-up projected group scores**

Repeat Step 2 for the projected scores calculated in Step 3. Table 2-5 shows the normalized group scores for the existing and projected mitigation site conditions.

## **Step 5     Calculate net functional loss based upon the differences between existing and projected group scores**

The functional loss per acre for each of the 7 groups shown in Table 2-5 is the difference between the existing and projected group scores. The net functional loss per acre for the permitted site is the sum of the 7 group functional losses.



### 3. Overview - Stream Credit Debit Method

The purpose of the stream credit debit calculation method (SCDM) is to calculate stream credit generations at SAMF mitigation sites, and debit generations at USACE permitted sites.

The three primary goals of the SAMF SCDM are:

- Provide SAMF with the ability to generate mitigation credits for restoration and/or enhancement of streams.
- Establish a regionally-relevant, function-based, mitigation credit calculation method.
- Maximize transparency and efficiency when comparing the debits at the permitted impact site to the credits at the SAMF mitigation site.

The SAMF SCDM closely follows the concepts and methods of *A Function-Based Framework for Stream Assessment & Restoration Projects* (Harman et al. 2012), hereafter referred to as the Harman method. The use of this framework has been strongly encouraged by the IRT. The foundation of the Harman method is the arrangement of key stream functions in a hierarchical framework, shown in Figure 3-1. Each of these key stream functions is supported by the function/s below it. Harman et al. (2012) provides detailed descriptions of each functional level. This conceptual framework is useful for assessing functional change based on permitted actions or mitigation, as well as for developing site-specific restoration, enhancement and establishment goals. If a restoration project has a goal to lift a specific function- the function below should be addressed. For example, a project that addresses a fish passage problem would provide fish access to additional habitat and provide a biological functional lift. However, if the underlying functions were either compromised or not addressed in project design, then there would be higher risk of not achieving overall project goals.

The Harman method utilizes a suite of field-based tools and reference condition data gleaned from peer-reviewed literature to assess specific stream metrics (e.g. *width to depth ratio*). The critical step in this method is to select assessment tools and reference data that are relevant to the ecology and landscape of, and the types of impact and mitigation activities that will occur in southeast Alaska. This methodology targets low to moderate gradient, forested streams and rivers that are susceptible to development impacts, and typically have the highest value riparian and aquatic resources in the region.

The SAMF SCDM does not assess conditions for all of the Harman function levels shown in Figure 3-1. The SCDM only assesses conditions for the 3 function levels shown in Table 3-1, where regionally-relevant assessment tools already exist or can be reasonably developed. However, the SCDM provides enough flexibility to incorporate additional tools (by modification).



Stream function pyramid level	Grouped function parameter	Metric (code)	Assessment tool and reference data
Hydraulic	Floodplain connectivity	Bank to height ratio (BHR)	Harman et. al 2012 <i>sensu</i> Rosgen 1996
		Width to depth ratio (WDR)	USFS Tier II
Geomorphology	Bed form diversity	Pool per km (PPK)	USFS Tier II
		Pool spacing (PS)	USFS Tier II
		Pool depth ratio (PDR)	USFS Tier II
	Channel stability	Streambank veg (BkV)	Riparian PFC/ Wetland HGM
		Streambank condition (BkC)	
	Woody debris	Key wood per meter (KWD)	USFS Tier II
Biology	Off-channel habitat	Spatial extent of off-channel fish habitat (OCH)	
	Fish Habitat	Species presence (FS)	AK Hydro GIS data base
	Riparian forest condition index	Right Bank (RCR)	USFS Riparian Strategy (2014)
		Left Bank (RCL)	

**Table3-1.** Stream functions, metrics, and assessment tools used in the SAMF SCDM. "USFS Tier II" refers to the *USFS Alaska Region Aquatic Habitat Management Handbook* 2001.

### 3.1 Assessment tools and scoring:

Table 3-1 lists the assessment tools and reference data used to calculate individual stream metrics. Each functional parameter, associated metric and rating scheme are outlined below. The accompanying SAMF-SCDM Calculation Excel Worksheet is the primary tool used to calculate total functional gain or loss scores for the survey reach.

#### 3.1.1 Hydraulic Function- Floodplain Connectivity

The metrics of *bank-to-height ratio* and *width-to-depth ratio* are standard hydrological assessment parameters (Rosgen 1996). Values for these metrics are categorized as functioning, functioning at risk, or not functioning based on reference conditions defined by Harman et al (2012), and Tucker and Caoutte (2008).

Table 3-2 shows how these parameter values are used to score both *bank-to-height ratio* and *width-to-depth ratio* for the SAMF SCDM. For example, if the value of *bank-to-height ratio* measured at the mitigation site is 1.6, the SAMF SCDM score of 0.0 will be entered in the SCDM calculator.



Table 3-2 shows interpretations for *bedform diversity* (pool metrics) and *woody debris*, and how the percentile values are converted to a score between 0 and 1 for the SAMF SCDM. For example, if the field value of key woody debris per meter measured at the mitigation site is below the 25<sup>th</sup> percentile for that specific channel type, the SCDM score of 0.1 will be assigned. At this point, the scores are assigned as a discrete variable. The USFS Tongass National Forest continues to collect reference site information. As the density of data increases, the SAMF SCDM scoring method may be modified at a future date to assign continuous variables between 0 and 1.

Metric		Percentiles		
		< 25 <sup>th</sup>	> 25 <sup>th</sup> and < 75 <sup>th</sup>	> 75 <sup>th</sup>
Pools per kilometer	Interpretation	Fair	Good	Excellent
	SCDM score	0.1	0.5	0.9
Pool spacing	Interpretation	Excellent	Good	Fair
	SCDM score	0.9	0.5	0.1
Pool depth ratio	Interpretation	Fair	Good	Excellent
	SCDM score	0.1	0.5	0.9
Key wood per meter	Interpretation	Fair	Good	Excellent
	SCDM score	0.1	0.5	0.9

**Table 3-3.** Scores assigned to SCDM metrics base upon USFS Tier II reference data. Qualitative interpretations are from Tucker and Caouette (2008).



Stream Bank Vegetation Index BkV:

- Proper Functioning: rating = 0.9

Streambanks have dense, nearly continuous cover of native forb, riparian shrub and tree species. Tree cover is dominated by mature Sitka spruce and western hemlock with some red alder inclusions. The banks have a diverse riparian shrub community including: willow, salmon berry, stink currant, thimbleberry, devils club and Sitka alder. Vegetation exhibits high vigor with adequate numbers of seedlings and young plants to insure replacement and recovery of streambank cover. Streambank soils have substantial tree and shrub root masses capable of withstanding high flows.

- II. Functioning at Risk: rating = 0.5

More than 85% of the streambank has a continuous cover of native vegetation and intact organic mat. Streamside tree cover is dominated by young growth conifer, Sitka alder or cottonwood stands that have less extensive root masses to resist streambank erosion than old growth conifer forest. Riparian shrub communities have low diversity or reduced vigor. Vegetation provides bank stability in the short term, but lack of future recruitment puts the stream at risk of bank instability due to lack of large wood and adequate root masses to maintain streambanks.

- III. Not Functioning: rating = 0.1

More than 15% of streambanks lacks vegetation cover or intact organic soil mat. There is a lack of tree and shrub species with adequate root mass to stabilize streambanks. There are few healthy seedlings or young plants to insure recovery of native plant cover.

Stream Bank Condition Index BkC:

- I. Proper Functioning: rating = 0.9

Raw banks are mostly evident only at stream meander bends. In unconfined channels (FP, AF and MM Process Groups), *width to depth ratio* (WDR) is within the functional range for the channel type. *Bank to height ratio* is usually less than 1.2. Overhanging banks supported by dense root masses are common. Tops of point bars are starting to be colonized by vegetation.

In confined channels (LC and MC Process Groups), banks are predominantly bedrock or boulder size material with little evidence of channel side slope erosion.

- II. Functioning at Risk: rating = 0.5

In unconfined alluvial channel segments bank erosion (vertical stream banks) occurs on straight reaches between meanders. Bank slumping and false banks are evident in up to 15% of the study reach. Low WDR (<50<sup>th</sup> percentile) indicates



includes freshly deposited alluvial material (gravels and sand). Evidence of juvenile or adult fish utilization may also be present.

II. Functioning at Risk: rating = 0.5

Only indistinct surface connection to main stem channel can be found. The *bank-to-height ratio* for the main stem channel segment is most likely in the functional at risk (1.3 to 1.5) range. Water transmission is dominantly via over bank flooding or seasonally elevated groundwater. Features are often dry during normal flow conditions in adjacent stream channels. Substrate is fine textured alluvium and organic litter. Portions of the side-channel bed are being colonized by herbaceous vegetation.

III. Not Functioning: rating = 0.1

Side channels likely retain water only during major flood events. There is little evidence of surface water flow or deposition of alluvial sediment. Most of the channel bed has been colonized by shrubs and trees. The *bank-to-height ratio* for the adjacent main stem channel segment is in the not functional (>1.5) range.

### 3.1.3 Biology

#### *SCDM fish presence* (FS)

The *fish presence* (FS) parameter under the SCDM biology function evaluates utilization of salmonid habitat within the survey reach. The primary reference for this metric is the Alaska Hydrography (AK Hydro)<sup>5</sup>. *AK Hydro* is a compilation of the most detailed and comprehensive GIS surface water mapping in southeast Alaska. Information cataloged in *AK Hydro* includes: freshwater fish species utilization and habitat suitability survey data from multiple sources; the State of Alaska Anadromous Fish Catalog (ADFG 2016); stream geomorphology classification attributes, (USFS, 1992); as well as map delineations for stream networks, lakes, ponds, natural fish barriers, engineered fish passes, dams, and stream gaging stations.

*AK Hydro* hydrography and associated attributes does not address all conditions that may affect fish habitat utilization within a survey stream reach. Therefore the SCDM methodology incorporates criteria for evaluating local in-stream structures that may restrict fish passage and migration. Small (low-head) hydro power or water diversion structures can reduce or prevent fish access to upstream habitat. However, stream crossing culverts are the most common instream structures that present a significant concern for fish migration in the region. A comprehensive inventory of 1500 culvert crossing on the Tongass National Forest determined that a third of these culverts do not meet State of Alaska fish passage standards (USFS 2014b). This study also developed general criteria for culvert characteristics that “can be assumed to restrict juvenile fish migration” (juvenile salmonids have the most restrictive requirements for upstream migration):

- I. Culvert span is less than 50% of the channel width.
- II. Culvert outlet is perched more than 4 inches.

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<sup>5</sup> AK Hydro information and data can be accessed thru The southeast Alaska GIS Library, <http://seakgis.alaska.edu>



Riparian reference conditions are tailored to the different fluvial geomorphic surfaces that are common in these areas : 1) Low flood plain is a terrace slightly above bank full elevation that is flood by 1 to 5 year events; 2) High flood plain is a higher elevation terrace that is infrequently flooded by large, >5 year recurrence interval runoff events; 3) Relic channels are flood plain depressions disconnected from active stream channels that are affected by a high ground water table; 4) Alluvial fans are broad sediment deposition areas that form where a mountain slope tributary channel intersects the valley bottom. Descriptions of old growth riparian stand characteristics for each of these discrete geomorphic surfaces are outlined in the following Table 3-4.



shown promise for accelerating the recovery of riparian areas affected by timber harvest. Although treatments results vary based on stand history and local site conditions, riparian restoration treatments can result in significant progress in moving young growth stands toward attainment of "desired conditions" (as much as 50% reduction in time required to reach desired future condition).

I. Proper Functioning : rating = 1.0

Riparian zone stand and understory characteristics for the relevant geomorphic surface reflect desired conditions described above in Table 3-4. No more than 15% of the riparian zone area<sup>6</sup> has been impacted by wind throw, tree harvest, skid trails or road construction.

II. Functioning at Risk: rating = 0.5

Late seral stage, old growth riparian communities occupy at least 50% of the riparian zone area, however a significant portion of the riparian stand has been affected by timber harvest, extensive wind throw or disease. Young growth areas are trending toward recovery to desired conditions.

III. Not Functioning / Condition Improving: rating = 0.25

Less than 50% of the riparian zone vegetation meets criteria for desired condition. However, young growth riparian forest growth rate, structure and species composition indicate a trend toward recovery of riparian function and desired condition in the foreseeable future.

IV. Not Functioning: rating = 0.1

Only small remnants of old growth riparian forest remain in the riparian zone. Riparian forest recovery has stagnated due to conifer suppression by alder, shrubs or other conifers. Conifer stocking is low and conifer recruitment is poor due to soil disturbance and/ or frequent flooding. Disturbance vegetation communities ---alder, salmonberry and/ or non-native species-- are well outside the desired reference conditions (Table 3-4) and those conditions are likely to persist in the long term (50+yrs) without active restoration treatments. Permanent development activities within the riparian zone will prevent natural recovery of riparian function.

### 3.2 Credits: Streams

#### Summary:

The final output from the SAMF SCDM is total credits generated based upon a mitigation action. Existing and projected metric scores are organized as shown in Table 3-4. The projected score represents the condition following the mitigation action. The process then involves averaging the

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<sup>6</sup> Landwehr (2006) recommended a 15% threshold of concern for maintaining riparian area integrity based on monitoring results of stream riparian buffer condition across southeast Alaska.



	Pool max depth ratio (PDR)	0.5	0.9
Channel stability	Bank erosion or channel stability index (BEI)	NA	NA
Woody debris	Key wood per meter (KWD)	0.1	0.5
Riparian forest condition index (RI)	Right Bank Condition (RBC)	NA	NA
	Left Bank Condition (LBC)		
Fish	Species presence (FS)	0.85	0.85
Off-channel fish habitat	m <sup>2</sup> of off-channel fish habitat (OCH)	NA	NA

**Table 3-5.** Existing and projected metric scores for the Pat Creek mitigation site and design. NA indicates metrics that were not measured at this site.

#### **Step 4 Calculate projected group function parameter scores**

Repeat Step 2 for the projected group function parameters. Table 3-5 shows both the existing and projected group function parameter scores for the mitigation site.

#### **Step 5 Calculate net functional gain based upon the differences between projected and existing group function parameter scores**

The functional gain per foot for each of the 6 group function parameters shown in Table 3-5 is the difference between the projected and existing group scores. The net functional gain per foot for the mitigation site is the sum of the 6 group functional gains.

<b>Group function parameter</b>	<b>Existing score</b>	<b>Projected score</b>	<b>Functional gain per foot</b>
Floodplain connectivity (BHR, ER, WDR)	0.50	0.50	<b>0.00</b>
Bed form diversity (PPK, PS, PDR)	0.50	0.63	<b>0.13</b>
Channel stability (BEI)	NA	NA	
Woody debris (KWD)	0.10	0.50	<b>0.40</b>
Fish (FS)	0.85	0.85	<b>0.00</b>
Riparian forest condition index (RI)	NA	NA	
Off-channel fish habitat (OCH)	NA	NA	
<b>Net functional gain per foot</b>			<b>0.53</b>

**Table 3-6...** SCDM functional gain worksheet. Scores are for the Pat Creek mitigation site and restoration design. The codes in parentheses () indicate the individual metrics that contribute to that group score. Functional gain is the



### 3.3 Debits: Streams

The intention of the SAMF SCDM is to calculate debits with the same methodology as the credit calculation method described above. For the debit calculation, all assessments would occur on the stream reaches permitted for impact. The projected metrics are assessed considering the conditions following the permitted impact.

To calculate debits, adjust the above methodology as follows:

1. Step 5: Functional gain now refers to functional loss and the functional loss per foot formula is the difference between the existing (current) and projected (after impact) group function parameter scores.
2. Step 6: Do not apply a time factor nor a risk factor, because they do not apply for debit calculations



## 5. References

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## G. EXHIBITS

### 1.0 SAMF Credit Availability and Reservation Letter



SOUTHEAST ALASKA  
WATERSHED COALITION  
CONNECT - INFORM - PARTICIPATE

PO Box 1992  
Wrangell, AK 99929  
info@sawcak.org  
alaskawatershedcoalition.org  
907.205.4028

#### SOUTHEAST ALASKA MITIGATION FUND- IN LIEU FEE MITIGATION PROGRAM

#### CREDIT AVAILABILITY AND RESERVATION LETTER

*Date*

*Applicant Name*

*Applicant Address*

*Re: Project Name*

Dear *Applicant Name*,

This letter confirms that the Southeast Alaska Watershed Coalition (SAWC) has *stream and/or wetland* mitigation credits available for the *applicant project name* to purchase in the *appropriate HUC*. SAWC will reserve *number and type of credits* in this watershed at a cost of \$xx,xxx.xx per credit, for a period of 120-days from the date of this letter specifically for the *project name*. After that time, the *applicant name* may request an extension of this reservation, but there is no guarantee of availability beyond this date. If SAWC approves the extension, a new Letter of Credit Availability and Reservation will be issued.

This letter does not document payment for impacts. SAWC does not assume liability for the above mentioned impacts through this correspondence.

A Credit Availability Voucher accompanies this letter.

When the applicant is ready to submit payment for the above mentioned credits, please submit a completed Final Credit Sale Letter along with the payment written out to the "Southeast Alaska Watershed Coalition, SAMF program". Mail both the form and the check to *SAMF program manager* at the address shown in the above letterhead.

Sincerely,

Mitigation Program Manager



### 3.0 SAMF Credit Sale Letter and Receipt of Payment



SOUTHEAST ALASKA  
WATERSHED COALITION  
CONNECT - INFORM - PARTICIPATE

PO Box 1992  
Wrangell, AK 99929  
info@sawcak.org  
alaskawatershedcoalition.org  
907.205.4028

#### Southeast Alaska Mitigation Fund In Lieu Fee Mitigation Program

#### CREDIT SALE LETTER AND RECEIPT OF PAYMENT

*Applicant Name*  
*Address*

Subject: Statement of Sale for \_\_\_\_\_ Wetland Mitigation Credits and/or \_\_\_\_\_ Stream Mitigation Credits from the SAMF (project name) to (permittee name).

Date

This letter confirms that the sale of (# of credits) credits of (resource type - *wetland or stream*) and (# of credits) credits of (resource type - *wetland or stream*). These credits are being used as compensatory mitigation for (# of acres/linear feet) acres/linear feet of impact in the (HUC) as authorized by DA permit (DA permit number)

By selling credits to the permittee above, SAWC under the Southeast Alaska Mitigation Fund In Lieu Fee program is the party responsible for fulfilling the compensatory mitigation aspect for the permit(s) listed here within.

Sincerely,

Southeast Alaska Mitigation Fund  
Program Manager

#### RECEIPT OF PAYMENT

Southeast Alaska Mitigation Fund In Lieu Fee Program			
Service Area:			
HUC:			
Permit No:		Permittee:	
Project:		Project Manager:	
Location:		Date	
Waterway:			
Cowardin Wetland Credits			
System	Subsystem	Acres Impacted	# of Credits
Estuarine	Subtidal		
Palustrine			
Riverine			
Lacustrine	Lake-Littoral		
	Lake Limnetic		
Total Wetland Credits			
Stream Credits			
System	Linear Ft Impacted	# of Credits	
Instream			
Riparian			
Total Stream Credits			



Listed below are the local and regional mitigation fund partners and technical service providers that SAWC has established relationships with at the time this instrument was being developed. These entities have vetted the Southeast Alaska Mitigation Fund and have the capacity and expertise to support mitigation activities under the ILF program. In the table below, the *Watershed of Operation* column is the 8-digit HUC watershed within the service where SAMF will focus its mitigation activities at the onset of the program. Please see the service area map in Appendix A to reference specific HUC names and locations. Again, this list is not a comprehensive list of all potential partners and contractors operating in the region. The technical service providers listed below have provided SAWC mitigation fund partners with technical expertise to accomplish various elements of habitat restoration activities and/or have been contracted by SAWC to support in the development of the Southeast Alaska Mitigation Fund.

**Mitigation Fund Partner List**

<b>Organization and Name of Restoration Contact</b>	<b>Expertise</b>	<b>Watershed of Operation 6 Digit HUCS</b>
<b>Local Partners</b>		
City and Borough of Yakutat	Aquatic resource restoration project management, watershed research and assessment, wetland delineations	Northern Alexander Archipelago and Gulf of Alaska
Takshuanuk Watershed Council	Aquatic resource restoration project management, watershed research and assessment, wetland functional assessments	Northern Alexander Archipelago and Gulf of Alaska
Sitka Conservation Society	Aquatic resource restoration project management, watershed research and assessment, watershed prioritization	Central Alexander Archipelago
Juneau Watershed Partnership	Aquatic resource restoration project management and assessment	Northern Alexander Archipelago and Gulf of Alaska
The Nature Conservancy Alaska	Aquatic resource restoration project management, watershed research and assessment, site prioritization	Southern Alexander Archipelago
<b>Regional Partners</b>		
The Nature Conservancy, Alaska	Aquatic resource restoration project management, watershed research and assessment, site prioritization	Southeast Alaska Region
The Southeast Alaska Land Trust	Aquatic resource mitigation in the form of preservation	Southeast Alaska Region
Trout Unlimited, Alaska	Project funding acquisition, pre-project implementation coordination. Contract development and awards	Southeast Alaska Region
United States Fish and Wildlife Service, Coastal Program	Aquatic resource mitigation, specifically Fish Passage, assessment	Southeast Alaska Region
United States National Forest, Tongass National Forest	Aquatic resource mitigation, watershed research and assessment, watershed	Southeast Alaska Region



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## H. LITERATURE REVIEW:

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- EO (Executive Order) No. 11988 (Floodplains Management)
- ESA (Endangered Species Act) (16 USC 1531 et seq.)
- Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (60 FR 58605-58614, November 28, 1995)
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