

NOAA FISHERIES WEST COAST REGION CONSERVATION BANKING,
JOINT BANKING, AND IN-LIEU FEE PROGRAM
TIPS AND TOOLS

West Coast Region

National Marine Fisheries Service

National Oceanic and Atmospheric Administration

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LIST OF ABBREVIATIONS

ACOE	United States Army Corps of Engineers
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CWA	Clean Water Act
DARRP	Damage Assessment, Remediation, and Restoration Program
EFH	Essential Fish Habitat
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
FWCA	Fish and Wildlife Coordination Act
GC	General Counsel
HCP	Habitat Conservation Plans
ILF	In-Lieu Fee
ILFs	In-Lieu Fee Programs
IRT	Interagency Review Team
LAA	Likely to Adversely Affect
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OPA	Oil Pollution and Prevention Act
RIBITS	Regulatory In-Lieu Fee and Banking Tracking System
RPA	Reasonable and Prudent Alternatives
RPM	Reasonable and Prudent Measures
T&Cs	Terms and Conditions
WCR	West Coast Region

I. INTRODUCTION

This document provides information and recommendations for the use of conservation banks and in-lieu fee programs (ILFs) for the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS) West Coast Region (WCR) staff. We intend for this document to help create efficiencies and consistency for projects that NMFS typically reviews under various authorities. The document describes concepts and recommendations regarding the use of various mitigation tools within our existing authorities. This document is not a rule, regulation, or policy, and the recommendations may not apply to all situations. The tips and tools provided in this document do not change or substitute for any law, regulation, policy, or any other legally binding requirement and are not legally enforceable.

The information provided in this document addresses conservation banks and ILFs as tools for mitigating unavoidable adverse impacts of land and water management actions on listed species and designated critical habitats under the Endangered Species Act (ESA). Conservation banks and ILFs are tools for addressing environmental considerations in a manner that helps simplify and streamline ESA consultations while addressing the conservation needs of the affected species and their habitats. They can provide large-scale ecological benefits, protect key habitat types, and support species life-stage specific needs. They bring together funding, market-based systems, landscape-level conservation planning, long-term monitoring and management, plus assurances that the ecological services will be maintained in perpetuity. Although this document is focused on compensatory mitigation for listed species and designated critical habitats, compensatory mitigation is an important component of NMFS work implementing several of our authorities and many of the concepts also apply to mitigation for essential fish habitat (EFH) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Federal Power Act, and the Fish and Wildlife Coordination Act (FWCA).

Conservation banks and ILFs are attractive to project proponents and land managers because they can achieve mitigation and conservation in a market framework. That framework calibrates exchanges of habitat services created for a bank or ILF program (credits) with specific adverse project effects (debits). This type of transaction can speed up consultations by providing mitigation with assurances that debits are appropriately offset through a credit purchase. Such transactions relieve the burden of having an action agency or applicant find, design, construct, and maintain mitigation for individual projects. Agencies, applicants, industry, and society benefit from the consolidated management, monitoring, and maintenance of banks and ILFs, as opposed to monitoring and maintaining multiple smaller sites. Benefits include the assurances that banks and ILFs provide through formal instruments aimed at ensuring funding and management of the mitigation in perpetuity.

NMFS WCR has participated in establishing conservation banks and ILFs to conserve listed salmonids (Appendix I). This document is intended to assist NMFS WCR staff in supporting future conservation banking and ILFs in partnership with other federal agencies, applicants, permittees, local governments, tribes, landowners, water users, and other stakeholders. Section II provides context and background for mitigation and compensation, in general. It also overviews mitigation banks and ILFs for Clean Water Act (CWA) application, which is relevant, as ESA conservation banks and ILFs emerged from, and are closely related to, mitigation banks

for CWA purposes. Sections III and IV describe specific concepts of conservation banks and ILFs, respectively. Section V overviews the relationship of different banks and ILFs to multiple NMFS authorities. Sections VI and VII provide guidance for staff for the development and establishment of conservation banks, ILFs, and joint banks, which address multiple authorities.

II. MITIGATION CONCEPT AND BACKGROUND

Mitigation is a general term for measures taken to avoid, minimize, and compensate for adverse impacts to resources. This characterization of the term mitigation is based on the definition of mitigation in the Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations (40 CFR 1508.20). The CEQ mitigation definition remains unchanged since being codified in 1978 and states that “Mitigation includes: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.” As a practical matter, the five mitigation elements in the CEQ definition are categorized into three general types: avoidance, minimization (including rectifying and reducing), and compensatory mitigation.

Adverse impacts should be avoided and minimized, in that order, before compensating for remaining impacts. However, we recognize that some limited situations may warrant a departure from this preferred mitigation sequence. In these situations, NMFS WCR will avoid, minimize and compensate based on the mitigation form that best achieves the conservation objectives for the affected resources, consistent with NOAA’s authorities and relevant permitting authorities. Avoidance and minimization are usually very project and resource specific. The rest of this document focuses on compensatory mitigation concepts, which we employ after avoidance, and minimization has been implemented to the fullest extent.

The Army Corps of Engineers’ (ACOE) and the United States Environmental Protection Agency’s (EPA) mitigation banking program is well established. The ACOE issues permits under section 404 of the Clean Water Act (CWA) and other authorities. The ACOE has been using mitigation banks and ILF instruments for many years to provide compensation for unavoidable impacts to aquatic resources mainly under section 404 of the CWA. Their joint 2008 Rule with EPA: Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Parts 325 and 332 and 40 CFR Part 230) (2008 Mitigation Rule) establishes standards and criteria for compensatory mitigation including mitigation banks.

The 2008 Mitigation Rule defines compensatory mitigation as “the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse effects which remain after all appropriate and practicable avoidance and minimization has been achieved.” In this context, EPA and the ACOE present compensatory mitigation as a regulatory requirement for unavoidable impacts to aquatic resources. Under the 2008 Mitigation Rule, an ACOE permittee may offset unavoidable impacts to waters of the United States or other aquatic resources through the purchase of mitigation bank credits or by paying a fee to an ILF program.

A key element of the 2008 Mitigation Rule (and mitigation banking rules in some states), is the establishment of Interagency Review Teams (IRTs).¹ An IRT is a group of federal, tribal, state, and local regulatory or resource entities that reviews mitigation bank proposals and advises the ACOE on the establishment and management of banks and ILFs. The IRT works with applicants to develop mitigation banking instruments and ILF agreements. Mitigation banking instruments and ILF agreements capture the terms and conditions of bank/program approval or certification. After banks and ILFs begin operation, IRT members also oversee the establishment, use, and operation of the bank.

The CWA section 404 regulates activities affecting aquatic resources. While CWA section 404 implementing regulations direct the ACOE to give special consideration to threatened and endangered species, and special aquatic sites (40 CFR 230 subpart D and E), further regulatory authority and expertise regarding NMFS trust resources resides with NMFS. When working together in IRTs, ACOE staff draw on NMFS expertise associated with NMFS authorities including the ESA, the Magnuson Stevens Fishery Conservation and Management Act (MSA), and the Fish and Wildlife Coordination Act (FWCA).

As members of an IRT, NMFS WCR staff have the opportunity to contribute knowledge specific to ESA-listed species, essential fish habitat (EFH) pursuant to the MSA and other NMFS trust resources. To the extent that conservation banks, mitigation banks, and ILF programs can support the conservation needs of NMFS trust resources, NMFS supports the use of banks and ILF programs that make use of the CWA approach and concepts outlined in the 2008 Mitigation Rule. The remainder of this document further describes those concepts. And, while section V of this document overviews the options for conservation banks and ILFs, including stand-alone banks and programs for ESA purposes and Natural Resources Damage Assessment (NRDA), most conservation banks can be developed jointly with IRTs for multiple purposes, for example for CWA, state authorities, and listed species. Such “joint banks” address resources protected under authorities administered by multiple IRT member agencies.

III. CONSERVATION BANKS

While a mitigation bank, as described above, is established to offset impacts to wetland habitats under section 404 of the Clean Water Act, and is used in CA for mitigating impacts to EFH², a conservation bank, for purposes of this document, is established to offset impacts to ESA listed species and their critical habitats. A conservation bank is typically a site or suite of sites that provide ecological functions and services and are conserved and managed in perpetuity for particular species. Once established, they are later used to compensate for impacts occurring

¹ See 33 CFR 332.8(b) of the 2008 Mitigation Rule

² See Appendix I: Port of Los Angeles Harbor Habitat Mitigation Bank and San Diego Bay Eelgrass Mitigation Bank.

elsewhere to the same species.³ The concepts underlying conservation banks for protected and managed species and those defined by the 2008 Mitigation Rule for mitigation banks are similar (and many of the concepts here also apply to ILFs). An entity invests in ecological improvement (or preservation in some limited cases) of a piece of property (typically) and those improvements are evaluated and “banked” for exchanges that offset adverse effects of projects.

The value of a bank is defined in compensatory mitigation credits. Credits generated by the bank site are sold by the bank sponsor to parties that need to compensate for the adverse effects of their activities and/or to contribute to the conservation of protected species and their habitats. The bank sponsor can be a public or private entity. Under the terms of the bank instrument, the bank sponsor will be responsible for ensuring that the compensatory mitigation measures are completed and successful.

The habitat benefits realized through establishment of a bank can be used to offset the adverse effects of future actions causing adverse habitat impacts. Conceptually, bankers invest in environmental improvements and long-term management at a site where those improvements enable establishment or conservation of environmental functions and services. We refer to these habitat improvements as “functional lift” or “ecological lift.” Using various assessment methods⁴, the extent of lift can be evaluated and converted into a currency as a number of credits. Using the same assessment and currency as for determining the credits, we evaluate projects that degrade environmental or ecological function (referred to as “debits”) to determine the number of credits needed to offset that degradation. The creation of net-resource services (the functional lift) is used to offset unavoidable impacts (debits) to comparable resource services occurring elsewhere on non-bank lands (Mead *in* Carroll et al. 2008). The concept of functional lift (credits) as well as functional degradation (debits) are central and appear throughout this document.

IV. IN-LIEU FEE PROGRAMS

In lieu fee programs have both similarities to and differences from conservation and mitigation banks. They are similar to mitigation and conservation banks in that project proponents pay a fee to a sponsor that funds the restoration, establishment, enhancement, and/or preservation of aquatic resources for compensatory mitigation purposes. A fundamental difference from conservation banks is that the mitigation from an ILF program typically occurs after the project impacts. This difference emerges from the fact that ILFs are structured to make future investments in mitigation (under the 2008 rule within the regulatory timeframe of 3 years) after the ILF program proponent collects mitigation fees from entities whose actions have unavoidable adverse effects on covered resources. Instead of purchasing available credits from a mitigation or conservation bank, the fees collected go to an ILF program sponsor, who is either a

³ In the future, creative natural resource managers might develop conservation banks to provide ecological functions and services through means other than land, for example, through water.

⁴ There are several assessment methods. See Section ## on credit systems and see also Appendix # on Habitat Equivalency Analysis.

governmental or non-profit natural resources management entity, and who has obligations under the ILF governing instruments to undertake certain mitigation work. The ESA responsibilities of the project applicant and/or action agency are satisfied by the ILF program sponsor using fees collected from one or more project proponents to fund compensatory mitigation projects, thereby offsetting the effects of the individual actions for which the fees were collected. Typically, the sites at which the program sponsor uses ILFs to restore, establish, enhance and/or preserve, ecological conditions providing the functional lift are called “receiving sites”.

The temporal lag between the effects of the underlying action and implementation of the mitigation is one of two major differences between banks and ILF programs. The second difference is that ILF program instruments may provide less certainty than banks as to where or what mitigation will be funded, unless a roster of sites is identified in advance. The 2008 Mitigation Rule addresses potential issues related to both of these differences: the time lag and the identification of receiving sites after approval of the ILF instrument. To address ecological losses resulting from a time lag between impact and mitigation, the 2008 rule provides that the ACOE may require additional mitigation.

The 2008 rule specifically requires a compensation planning framework for ILFs which outlines detailed requirements regarding receiving site selection, conditions and objectives for preservation, service areas, implementation of mitigation, monitoring, and long-term protection to provide security that the ILF mitigation will be successful and adequately offset impacts for which fees were collected. As with mitigation banks, ILF programs should be developed under the oversight of an IRT, in accordance with the 2008 Mitigation Rule, and should require commitments for accountability and performance. An ILF program may provide compensatory mitigation for multiple federal, state, and local trust resources if the program is consistent with their statutory authorities.

V. RELATIONSHIP OF BANKS AND ILFs TO NOAA MISSION AND AUTHORITIES

NOAA’s mission addresses science, service and stewardship. A key component of NOAA’s mission is to conserve and manage coastal ecosystems and resources. Below we address some key authorities that promote this mission and that provide opportunities for or relate to conservation banks and ILFs.

A. Endangered Species Act⁵

1. ESA Section 7(a) (2) Consultations

Conservation banking and ILF transactions may be incorporated into ESA section 7(a)(2) consultations using a number of approaches. When this occurs, NMFS staff should follow the General Counsel advice⁶.

NMFS WCR staff can work with project proponents during early consultation to include conservation bank and ILF program transactions in proposed actions as a way to offset potential unavoidable effects⁷. When bank or ILF transactions are included in the proposed action, and as long as they provide ecologically relevant benefits and have appropriate reliability and certainty mechanisms and features, NMFS can analyze the beneficial effects of the proposed credits or ILF contribution as part of the effects of the action and those benefits can inform conclusions about whether a proposed action is likely to cause jeopardy to listed species and/or result in destruction or adverse modification of their critical habitats. NMFS can also seek the inclusion of mitigation through conservation recommendations. Conservation recommendations are discretionary measures to minimize and avoid adverse effects of a proposed action on listed species or critical habitat.

The NMFS can include conservation bank or ILF transactions in Reasonable and Prudent Alternatives (RPAs) to proposed actions that are found to cause jeopardy to listed species and/or destruction or adverse modification of critical habitat. Similar to including bank or ILF transactions in a proposed action, the analysis of an RPA can consider the beneficial effects of the bank credits or ILF program(s) in the effects analysis.

In some circumstances, bank or ILF transactions can be included in Reasonable and Prudent Measures (RPMs) and their Terms and Conditions (T&Cs) in the incidental take statement⁸. There are two relevant criteria. First, RPMs and T&Cs must specifically “minimize the impact of incidental take caused by the proposed action (50 CFR 402.14(i)(1)(ii)). Therefore, where a credit or ILF purchase is included in the RPMs/T&Cs there should be a clear and close relationship between the expected benefits of the bank/ILF program and the particular incidental take impacts of the proposed action. Second, RPMs and T&Cs can also only involve minor

⁵ Section 7(a)(1) directs Federal agencies to use their authorities to carry out programs for the conservation of threatened and endangered species. This mandate provides the opportunity for NMFS to work with other federal agencies on using conservation banks and ILFs as one of the tools to conserve threatened and endangered species. However, we have not utilized this opportunity in the WCR and are still working on developing such partnerships.

⁶ General Council memo can be found on Section 7 Intranet site at link http://home.nmfs.noaa.gov/organization/regions/west_coast/2_cross_div_coord/3_sec_7/2018-04-12_memo_guidance_on_consultations_involving_conservation_banking_credits_or_in-lieu_fee_payments.pdf – only accessible if on NMFS intranet.

⁷ NMFS supports incorporating conservation banks and ILFs into the proposed actions for actions with both NLAA and LAA determinations of effect. However, the beneficial effects of a conservation bank or ILF program cannot be used to ‘offset’ adverse effects in order to reach an NLAA conclusion. An NLAA conclusion can only be reached if all adverse effects are insignificant or discountable.

⁸ The 1998 section 7 FWS/NMFS handbook interprets that it is not appropriate to require mitigation for the impacts of incidental take. Different from that interpretation, we now better understand the regulations to provide for using mitigation to minimize the impact of incidental take.

changes to the proposed action (50 CFR 402.14(h)(3)). NMFS staff are encouraged to seek General Counsel's advice when considering whether and how to incorporate an RPM/T&C related to a banking or ILF transaction.

Finally, as NMFS WCR staff engages in programmatic consultations, conservation banks and ILFs can be useful tools for federal action agencies to offset unavoidable adverse effects at a program-level scale. Programmatic consultations typically involve many types of effects from multiple similar actions within a large area over a long period of time. Due to their potential large scale and scope and design to promote optimal conservation outcomes at a landscape or seascape scale, conservation banks and ILFs provide a mechanism to offset multiple effects of programmatic actions during the permitting phase of the programmatic action. Examples of consultations that include integrated mitigation that can include credit from banks are: Regional General Permit (RGP) -5 WCR 2014-223 (NMFS 2016a), RGP-6 WCR 2016-4361 (NMFS 2016b), The Integrated Restoration and Permitting Program for Lake Washington and Lake Sammamish (NMFS 2016c).

When assisting applicants with using bank or ILFs credits for individual and programmatic consultations, consider the following concepts to best further recovery:

1. Proximity: In most cases, preference should be given to sites that are as close to the impact site as possible and that also will provide successful compensation for the ecological functions and services lost as a result of the proposed action. However, there may be circumstances where it is preferable, for purposes of meeting conservation objectives, to locate compensatory mitigation some distance from the impact site. As for all compensatory mitigation, the ecological connection between the location of the adverse impact and the location of the conservation bank or in lieu fee site should be clearly articulated.
2. In-kind or out-of-kind: In most cases, preference should be given to in-kind compensation, i.e., the same type of habitat as that affected by the proposed action. However, there are circumstances in which out-of-kind compensatory mitigation, i.e., a different type of habitat, may be environmentally preferable and would be a better option for achieving conservation and recovery objectives for the affected resources. In evaluating in-kind versus out-of-kind compensatory mitigation options take into account factors such as:
 - out-of-kind compensation that prevents the decline of a habitat type that is rare or becoming scarce, when in-kind compensation does not.
 - out-of-kind compensation that replaces common or readily available functions with scarce and important functions.
 - desirability of the lost aquatic habitat type in the affected landscape or seascape, as in when a watershed, estuary, or similar plan identifies a habitat as being less desirable than others.
 - connectivity and proximity to the impact site of out-of-kind compensation vs in-kind compensation.
 - recovery goals and objectives, priority threats, and limiting factors for ESA-listed species, as well as priority actions for conserving the ecosystems upon which the listed species' depend.

2. ESA Section 10 Incidental Take Permits and Habitat Conservation Plans

Section 10(a)(1)(B) of the ESA authorizes the issuance of permits for the incidental take of listed species to non-federal entities for the implementation of conservation plans that have become known as Habitat Conservation Plans (HCPs). One of the main criteria for approving an HCP is a finding that the conservation plan minimizes and mitigates the adverse effects of the permitted action on covered species to the maximum extent practicable. In that requirement, HCPs can include implementation of mitigation programs of various structures, including fee-based mitigation strategies that resemble ILFs. For example, see the Coachella Valley Association of Governments Multi-species HCP (2008, amended in 2016), which includes a mitigation-fee element through which developers pay fees that support parts of the HCP's conservation program. Examples of the use of a planned mitigation structure based on the collection of mitigation fees to pay for certain types mitigation have not been common in the past, but are a viable method of incorporating planned mitigation into HCPs. Furthermore, HCPs using banking-like mitigation components can be explored as part of future HCPs, including situations where the applicant can, among other things, preserve high value habitat that would be otherwise vulnerable to development.

3. ESA Section 4 Recovery Plans

Recovery plans provide important context for determining how to locate and design conservation banks and ILF receiving sites so that the conservation benefits accruing to listed species can complement and contribute to recovery actions and objectives. Staff working with bankers and ILF program sponsors should bear in mind that the conservation benefits of banks and ILFs accrue as a result of compensatory mitigation in exchange for habitat degradation in other forms and places. Accordingly, NMFS staff should ensure that proposed bank and ILF receiving sites support recovery objectives and in no way hinder or impair implementation of proposed recovery actions and objectives.

B. Magnuson-Stevens Fishery Conservation and Management Act and Fish and Wildlife Conservation Act Consultations

Federal agencies consult with NMFS under the MSA and the FWCA. The MSA provides for designation of EFH in federal fishery management plans. Under the MSA, federal agencies are required to consult with NMFS on actions that they authorize, fund, or undertake that may adversely affect EFH; and requires NMFS to recommend measures that the federal agency can take to conserve EFH. When the same species are addressed under ESA and EFH, the same mitigation usually will address needs under both statutes. However, mitigation under the MSA might be slightly different from mitigation used to support ESA, based on the different objectives of these laws. The MSA aims to foster long-term biological and economic sustainability of our nation's marine fisheries, whereas the goal of the ESA is to conserve listed species and the ecosystems upon which they depend.

The FWCA requires federal agencies to coordinate with the applicable federal and state fish and wildlife agencies regarding the impacts of water resource development projects⁹ on fish and wildlife resources and to give wildlife conservation equal consideration with the water resource development project. In providing recommendations to such agencies under the FWCA, NMFS can propose measures to mitigate or compensate for the project damage, and the FWCA provides that the cost of mitigation can be included in project costs. Conservation banks and ILFs can be used to help meet the consultation/coordination objectives of these statutes by providing opportunities to mitigate for project effects.

C. Federal Power Act

The Federal Energy Regulatory Commission (FERC) authorizes the licensing of non-Federal hydropower projects pursuant to the Federal Power Act (FPA), as amended in 2005. Projects are issued licenses for 30-50 years. NMFS participates in the licensing of non-federal hydropower projects by FERC. Under FPA Section 18 (16 U.S.C. § 811), NMFS has authority to prescribe mandatory fish passage measures (“fishway prescriptions”) to ensure safe, timely, and effective fish passage. Such prescriptions are mandatory and must be included in the license issued by FERC, although licensees are entitled to request a formal adjudication of their factual basis. FPA Section 10(j) (16 U.S.C. § 803(j)) provides NMFS with authority to make recommendations for the “protection, mitigation, and enhancement” of fish and wildlife. In addition, FPA Section 10(a) makes it a condition of license issuance that the project be “best adapted to a comprehensive plan for improving or developing a waterway or waterways” for multiple uses including “the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat).” NMFS can issue recommendations under Section 10(a) for FERC’s consideration. In issuing licenses, FERC must either include NMFS’s Section 10(j) and 10(a) recommendations as license conditions or explain its reasons for not doing so. Conservation banks and ILFs could be appropriate tools to protect, mitigate and enhance fish populations impacted by a FPA hydropower projects through our section 10(a) and 10(j) authorities, if their beneficial effects have a sufficient nexus and are ecologically relevant to the impacts of the hydropower project.¹⁰ However, conservation banks and ILFs are not an appropriate exercise of our section 18 fish passage authority, which is generally limited to requiring specific fish passage provisions at the time of licensing.

D. Mitigation under Damage Assessment Remediation and Restoration Program

Through the Damage Assessment Remediation and Restoration Program (DARRP), created in 1992 in the aftermath of the Exxon Valdez oil spill, NOAA conducts Natural Resource Damage Assessments (NRDA) to assess and restore natural resources after oil spills, ship groundings, and

⁹ Except for projects that impound water with a surface area of less than ten acres or “activities for or in connection with programs primarily for land management and use carried out by Federal agencies with respect to Federal lands under their jurisdiction” (FWCA 1958).

¹⁰ Using conservation banks and ILFs to mitigate for project impacts may be included in a FERC license if there is a sufficient project nexus. There may be further opportunities for licensees, at their discretion, to participate in a conservation bank or ILF separately from the FERC license to help streamline ESA consultation processes.

hazardous releases. As the primary federal natural resource trustee¹¹ for coastal resources, NOAA has responsibility for ensuring the restoration of coastal resources injured by oil and hazardous substances. Some of the key authorizing statutes for this authority are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund) and the Oil Pollution Act (OPA) of 1990. The NOAA DARRP works collaboratively with partners to hold parties accountable for injuries to natural resources. Through settlement or litigation, DARRP recovers the funds needed to restore injured resources and compensate the public.

Banks that are used to provide compensatory mitigation for NRDA cases are referred to as restoration banks. In this context, restoration banking covers any arrangement under which natural resource trustees accept from a settling party restoration bank credits produced by a third party in lieu of payments of funds or promises by the settling party to perform work. Restoration banking also covers situations where trustees directly purchase restoration credits generated by third party projects using funds separately recovered from parties potentially responsible for natural resource damages.

For restoration banking transactions for NRDA compliance, the NRDA trustee council must find that the proposed transaction: 1) meets suitability criteria established under the Oil Pollution Act (OPA) and/or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 2) is consistent with the restoration objectives and priorities outlined in the natural resources restoration plan, and 3) ensures the project developer has offered sufficient long-term protections that the project will provide the expected restoration benefits. Thus, NRDA banks are similar to mitigation and conservation banks in terms of requirements for performance, legal and financial viability, adaptive management and long-term stewardship. Further information can be found in the Guidance for Recognition and Use of Restoration Banks in Natural Resource Damage Assessments (NOAA Damage Assessment, Remediation and Restoration Program, 2016).

E. Stand-Alone Banks

Stand-alone banks are developed with state and/or Federal agencies, not including the ACOE, for mitigation supporting their specific conservation and regulatory needs. Regulatory review and oversight for stand-alone conservation banks is provided without the benefit of an IRT, as specified in the 2008 Mitigation Rule. However, regulatory oversight and coordination between NMFS or USFWS and state and local partners may follow a similar process to what is set forth in the 2008 Mitigation Rule. For example, strong state regulation has created a demand for mitigation in California and the state of California leads the WCR in having developed conservation banking templates¹² similar to the 2008 Mitigation Rule. Thus, the California Department of Fish and Wildlife has been a partner in stand-alone conservation banks with the USFWS in California including banks for vernal pools, giant garter snake, and desert tortoise (Fenner Valley Desert Tortoise Conservation Bank).

¹¹ With the USFWS

¹² <https://www.wildlife.ca.gov/Conservation/Planning/Banking/Templates>

Such stand-alone banks can be a good tool in limited situations, including when there is no overlapping regulatory authority with the ACOE. Credits from stand-alone banks can be used to provide mitigation related to: (1) EFH recommendations, (2) Fish and Wildlife Coordination Act recommendations, (3) ESA section 7, (4) preserves for HCPs established under section 10 of the ESA, and (5) state requirements that overlap with Federal authorities. However, for NMFS WCR trust resources, where we have or expect overlap with USACE CWA authorities, we encourage bank proponents to make use of the many benefits of joint banks.

F. Joint Banks for Multiple Authorities

Joint banks (also called multiple resource banks or overlay banks) address multiple resources protected under various Federal and state authorities. For example, joint banks may include lift for ESA-listed species, EFH, CWA impacts, and restoration associated with NOAA's DARRP authorities (Figure 1). Joint banks enable project proponents to satisfy the compensatory and conservation requirements of various federal and state agencies and authorities through the purchase of credits from a single entity. NMFS WCR encourages bank proponents to develop joint banks for NOAA trust resources under the oversight of an IRT in accordance with the processes set out at 33 CFR 332.8(b) of the 2008 Mitigation Rule as part of a joint bank, where appropriate. Utilizing the multi-agency approach outlined in the 2008 Mitigation Rule has several benefits over a sponsor developing a conservation bank with a single agency. First, the 2008 Mitigation Rule promotes a coordinated and collaborative multi-agency review and approval process. Second, the robust administrative and review process outlined by the 2008 Mitigation Rule provides bank sponsors the opportunity to get advice and oversight by many agency experts during the development of a bank. This can be a very effective process for determining the potential success and usefulness of the proposed bank. Third, as IRTs include agencies responsible for regulation or administration of various resources, joint banks can be tools for implementing different authorities. As such, joint banks streamline compliance by avoiding the need for project proponents to purchase credits from multiple individual banks, or by implementing a variety of compensatory mitigation activities. Finally, by providing multiple credit types, joint banks increase marketability of bank credits which likely increases the sustainability of a bank's conservation lift over time.

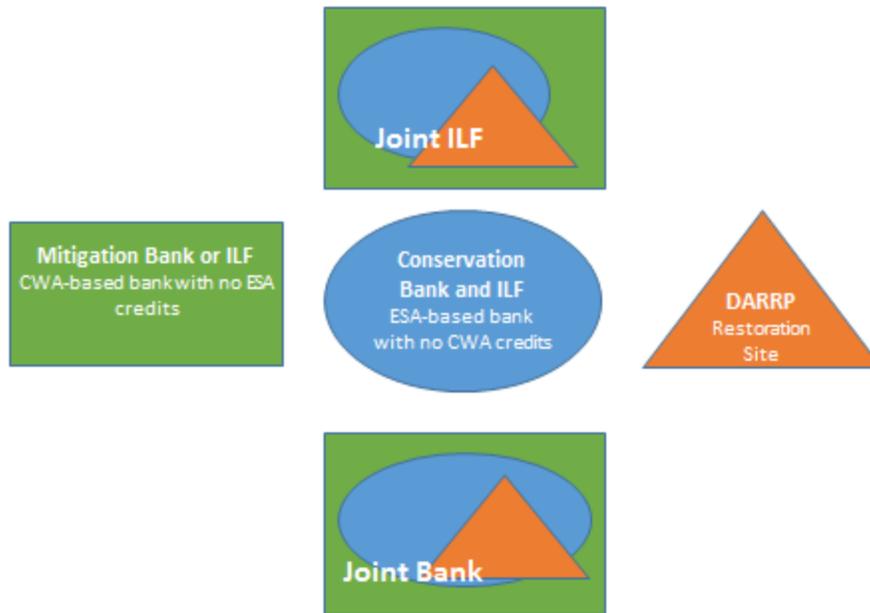


Figure 1. Banks and ILFs may offer one type of credit only or, in the case of joint banks or ILFs, can offer different types of credits. For example, a joint bank may offer a project proponent credits to address CWA 404 permit responsibilities to offset lost wetland habitat, species credits for impacts to ESA listed species, credits to offset EFH impacts, and credits for injuries to species considered in the DARRP program. The bank sponsor must be able to account for the different types of credits to ensure against selling credits more than once.

G. Providing Economic Opportunity

NOAA Fisheries', as part of the Department of Commerce, larger mission also includes affording sustainable economic opportunities. Supporting the use of banks as streamlined means to facilitate land development and stewardship within established regulations as discussed above provides such economic opportunity. The banking industry is leading the charge in providing society with habitat benefits as well as ready mitigation for streamlining permitting of land and water development actions. Industry built up around banking includes companies and families who want to preserve and restore habitat while still making an income from their land. For these families, banking can provide an alternative to or be managed synergistically with agriculture, forestry, or development. Mitigation is a core element of an industry which in the United States, directly employs more than 126,000 people and is worth \$9.5 billion dollars in direct sales, and indirectly supports another 95,000 jobs and is worth another \$15 billion dollars in economic outputs (BenDor et al., 2015). The Ecological Restoration Business Association formerly the National Mitigation Banking Association is one of the associations providing support and advocacy for this industry.

VI. DEVELOPMENT AND ESTABLISHMENT OF CONSERVATION BANKS AND ILF PROGRAMS

A. Goals and Objectives

Conservation banks and ILFs can provide an efficient and effective mechanism to offset adverse effects on listed species and critical habitat and contribute to their conservation. Under the 2008 Mitigation Rule, the objective is to offset the function of impacted aquatic resources, including streams and wetlands. In conservation banking and ILF programs for listed species under NMFS authority, the objectives can include offsetting impacts in a manner that addresses priority limiting factors and supports conservation (i.e. recovery) of listed species.

To support objectives for species conservation, staff should refer to species recovery plans and other recovery information, for example Five Year Status Reviews and Technical Recovery Team reports, when supporting development of individual conservation banks and ILF mitigation programs and related agreements. Recovery plans and conservation strategies typically identify high priority areas, threats, and conservation needs and actions. This information can help conservation bankers and NMFS evaluate whether the banking concept, geographic location, size, and management for the species is appropriate. Recovery plans and other conservation strategies can help guide NMFS in evaluating whether creation of a conservation bank or ILF program in a particular service area will contribute to the conservation of ESA-listed species.

B. Establishment

Agencies and bankers/ILF program sponsors use an agreement called an “instrument” to record the commitments and accounting governing conservation banks and ILFs. The instrument is the legal document for the establishment, operation, and use of the underlying conservation bank or ILF program. While some bankers prefer to prepare instruments for their projects from scratch, there are templates for banking documents, already approved and in use by several agencies throughout the WCR.¹³

The instrument typically includes several appendices relating to design, operation and maintenance, long-term conservation, monitoring, adaptive management requirements, and financial and ecologically-based performance standards. Exhibits include detailed design drawings, a conservation/habitat development/management plan, an operations and maintenance plan, a biological resource evaluation, real estate records and property assessment, financial assurances, and a credit system and credit release schedule. The commitments in the instrument will typically also require a plan of action and funding supporting long-term management and protection of the bank property, the real estate commitment (for example, a conservation

¹³ For example CA has banking templates <https://www.wildlife.ca.gov/Conservation/Planning/Banking/Templates>; The Washington Department of Ecology has a banking instrument template in use by the Washington IRT here: <http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/documents/MBI-Template.docx>

easement), and other documents regarding the commitments and assurances between the bank or ILF program Sponsor and the agencies.

The manner in which NMFS staff engage in bank/ILF establishment and instrument development depends on the situation. If the bank/ILF has a CWA nexus, then NMFS will most likely participate in bank/ILF establishment as a member of an IRT. In that context, NMFS also has the opportunity to co-chair the IRT when a bank/ILF program is proposed to satisfy NMFS's ESA requirements. As co-chair, NMFS would have administrative responsibilities to the entire IRT in addition to the technical assistance responsibilities of participating as an IRT member. If we agree with the terms of the instrument, then we can become a signatory or submit a letter expressing concurrence with the instrument. Regardless of the level of NMFS engagement, NMFS staff can provide beneficial technical assistance to the IRT and should have ample opportunity for input on the instrument the IRT develops.

Staff working with bankers must seek to involve NOAA General Counsel (GC) early in the development and review process for the instrument. Staff should identify a specific lawyer from the local NOAA GC office and prepare them as the bank/ILF program development proceeds. Typically, there will be little for NOAA GC to do until the banking/ILF program instrument is sufficiently developed for legal review. However, early and regular communication during the early bank development process will help ensure that the lawyer on your team is ready when the time for document legal review occurs.

The scope of legal review will vary according to the types of instruments in review. From experience with recent agreements completed in the West Coast Region, instruments based on templates usually simplify and shorten GC reviews. In contrast, bankers or ILF program sponsors insisting on using agreements in "one off" formats they devise themselves should expect lengthier reviews and deeper GC involvement.

C. Site Selection and Eligible Lands

Conservation banks and ILFs are typically market-driven. Market demand for mitigation and site availability in a geography will drive site selection. Conservation bankers and ILF program sponsors target property with potential resource values in prospective service areas containing likely conservation and mitigation demands. Prospective conservation bankers have contacted NMFS after locating a piece of property with resource value potential, seeking advice on whether the property makes sense for conservation. When approached for this type of feedback, NMFS should provide technical assistance regarding species habitat needs and recovery only. The banker can use this input to reach their own independent decision about whether to proceed with a prospective and financially viable bank.

Technical assistance will range from reference to large-scale information supporting species conservation to detailed analysis specific to local conditions and the need for habitat lift in specific places. Staff can assemble information for the former from a variety of sources. Such sources can include recovery plans or other frameworks identifying regional conservation goals and criteria for restoration. Examples can be found in Appendix I.

NMFS should encourage prospective bankers to select sites that provide conservation value for affected species and contribute to larger networks of interconnected habitats. To provide maximum services, bank and ILF sites should address threats, limiting factors, and viability parameters identified in recovery plans or other technical documents that address conservation strategies. Consistency with recovery plans and other watershed-based plans adds credibility to the anticipated value of a proposed bank or ILF site and in turn may increase available credits. Conservation banks and ILF sites should preserve, restore, establish and/or enhance ecosystem functions for the benefit of targeted listed species relevant to the life history expressed in and around the prospective site. Evaluating the conservation role of potential bank/ILF property will contribute to development of ecologically meaningful crediting systems and performance criteria.

When assisting applicants with siting and designing banks and ILFs, consider the concepts in the list below. These considerations will affect the credits a bank can receive and could affect the bank's value and viability:

1. Use a landscape or seascape approach selecting goals/parameters that best achieve conservation and recovery objectives.
2. Carefully evaluate the crediting of preservation in banks and ILFs as preservation without accompanying restoration does not provide new functions and services to offset the loss of functions and services elsewhere. Preservation bears the risk of resulting in net loss of functions and habitat. However, in some cases preservation may be an appropriate priority for a conservation bank or ILF and an important mitigation option to further NMFS' conservation and species recovery priorities (Roni et al 2002). Considerations for including preservation should include whether the preservation would address priority habitat needs, for example, limiting factors, habitat connectivity and life stage specific needs described in recovery plans and whether there are imminent threats of habitat destruction and/or demonstrable lack of regulatory protections for key habitat parcels that are important to further conservation. Ideally, preservation is accompanied by habitat restoration.
3. For site selection consider in-kind vs out of kind mitigation (for more detail see section V. A. 1.)
4. For site selection consider proximity: In most cases, preference should be given to sites that are as close to the impact site as possible and that also will provide successful compensation for the ecological functions and services lost as a result of the proposed action.

D. Service Area

The service area is the geographic area where the conservation bank's or ILF program's credits may be used to compensate for the adverse effects (project debits) of other actions. The size, shape, and location of the service area should be ecologically relevant to the benefits provided in the bank or ILF program for which it is designated. For example, for banks providing lift in habitat for ESA-listed species, the geography of the service area should track with the life history of the individuals and population(s) that can use the bank's habitat. Service areas should not be larger than appropriate to ensure that the resources provided through the bank will effectively

compensate for project or program impacts, and ultimately support aspects of species population viability for the populations of species that express life histories in the service area. Although economic viability may be considered, service areas should not be sized merely to increase marketability of credits in the bank or ILF program.

Staff working with bankers may consider exceptions to this general rule when those exceptions benefit the species, for example, for banks in estuaries or other locations that provide services for multiple populations or address key limiting factors. In certain limited situations, flexibility should be considered for projects outside the service area for a conservation bank, where the use of the bank will address adverse impacts to the target listed species or critical habitats adversely affected by the proposed project. Ultimately, NMFS staff should consider service area flexibility where species would benefit. NMFS, the banker, and the other relevant agencies or parties can negotiate conditions controlling out-of-service area flexibility. This should be reflected in the instrument.

E. Forms of Real Estate Assurances for Banks and ILF Receiving Sites

To ensure the bank will exist in perpetuity for conservation purposes, various forms of site protection can be used including ownership in fee simple (where the banker actually owns the property), conservation easements¹⁴, deed restrictions¹⁵, inclusion of protective covenants in the underlying deed to a property, title transfer to a conservation entity, and conservation land use agreements. The banker or ILF program sponsor will typically determine and control the form of property ownership and NMFS staff will usually defer to the preference of the banker/sponsor and IRT in matters relating to real estate issues and protective covenants provided they ensure certainty and reliability.

F. Credit Systems

Every conservation bank and ILF program uses a credit system to evaluate the resources in the bank and create a currency on which to conduct conservation bank or ILF program transactions. Credits represent a unit of measure for the biological resources that the banker restores, establishes, enhances, or preserves at a bank or in-lieu project site (Bonnie and Wilcove *in* Carrol et al. 2008). The credit calculations may be prepared by the banker, but ultimate approval of the crediting approach and calculations rests with the agencies or IRT.

There are many credit systems and evaluation models in use or under consideration in the NMFS WCR. In California and Oregon, joint banks have used acres of specific habitat types, or linear feet of stream with buffers, see credit types in Appendix I. In Washington State a credit/debit tool to calculate CWA 404 mitigation banking and ILF program habitat units (universal credits) is in use (DOE & USACE, 2013) and is used in the King County Mitigation Reserves ILF for example.

¹⁴ Legal document established to conserve biological resources in perpetuity, and which requires certain habitat management obligations for the conserved property.

¹⁵ Deed restrictions “run with the land” in perpetuity regardless of owner.

For conservation banking in Oregon and Washington, NMFS supports the use of Habitat Equivalency Analysis (HEA) as one model by which agencies and bankers can evaluate both credits and debits. HEA is a tool that allows users to calculate a common habitat currency for impacted and restored areas. This analysis incorporates the size of the affected area, the quality of the impact (how much restoration or degradation), the time of impact, and the duration for which the restoration or impact will persist. Appendix II to this document includes an explanation of HEA. The important challenge in determining which method works for a particular proposal is to ensure the method chosen is scientifically supported, ecologically relevant, and understandable to permit regulators and project proponents/applicants.

In CA, area- and habitat type-based mitigation is typically used including riparian floodplain forest, riverbank shaded riverine habitat, and off channel shaded riverine habitat (Appendix I). And where mitigation for bank stabilization is assessed, the Standard Assessment Methodology (USACE 2007, 2012) is frequently employed to determine impacts and required acreage of mitigation. The Standard Assessment Methodology is a tool to systematically evaluate the impacts and compensation requirements of bank protection projects based on the needs of listed fish species.

Credits may be based upon a number of ecologically relevant criteria, such as preserving, restoring, enhancing and/or creating specific habitat types, or quantifying ecologically relevant management activities such as changes in river flow or improvements in migratory success or survival. Because populations may vary in size due to natural dynamics, credits should not be based on the abundance of individuals. In general, NMFS staff can ensure consistency of the credit-debit currency by expressing and measuring credit and debits from adverse effects using the same models or tools.

Incorporating a temporal factor to account for the time it takes for new habitat or ecological processes and functions to establish and replace lost functions can be useful in the credit/debit method. An easy way to account for temporal losses is to increase ratios of mitigation to impact credits. For example, to avoid underestimating needed offsets, the Washington Department of Fish and Wildlife mitigation policy (1999) specifically requires ratios greater than one-to-one to account for temporal losses, uncertainty of performance, and differences in functions or values. The 2008 Mitigation Rule allows for the ACOE to require additional mitigation to offset temporary losses of aquatic habitat. The HEA model also accounts for temporal losses in habitat debit and credit determinations (Appendix II).

Finally, per provisions in the bank or ILF program instruments, agencies control the release of credits available over time according to an agreed upon schedule tied to the achievement of financial, legal, and ecological performance criteria. Credit release may include an initial (pre-construction) release, typically limited to a small percentage of the total eventual value of the bank. Initial releases provide a source for credit transactions that generate funds bank sponsors may use to continue habitat development and management on their bank sites. Additional credit releases occur by agreement provided in the instrument, typically after review and approval by the parties to the instrument and the IRT, if there is one. For joint banks, the parties must agree on an accounting method to ensure bankers will not sell the same credits for more than one resource impact, unless the resource impacts completely overlap (thus avoiding the issue of “double dipping”).

The NMFS has established an inter-agency agreement with the ACOE to track credits via the Regulatory In-Lieu Fee and Banking Tracking System (RIBITS)¹⁶. RIBITS provides online tracking of mitigation and conservation bank activity and ILF program activity, including contacts, service areas, credit ledgers, and bank documents. This system allows NMFS (and USFWS) to approve pending transactions that affect credits for species and their habitats under the jurisdiction of the Services. The RIBITS system is transparent and accessible to staff, bankers, other stakeholders, and the general public.

VII. TIPS FOR STAFF WORK ON CONSERVATION BANKS, JOINT BANKS, AND ILF PROGRAM PROPOSALS

A. NMFS Administrative Process

The following section provides general suggestions for reviewing conservation banking and ILF program proposals. The outlined process is an example that Divisions and Branches can employ to ensure appropriate involvement of WCR staff, management, leadership, and NOAA General Counsel. The process will vary depending on whether the proposed bank is a joint bank, or ILF proposal with an IRT (and what role NMFS chooses to take with the IRT), or whether it is a stand-alone conservation bank (no CWA nexus and no IRT). For joint banks, the review process is outlined in the 2008 Mitigation Rule, Receipt and Assignment, and also summarized below:

1. *Receipt and Assignment.* Depending on whether a conservation bank or ILF proposal has an ACOE nexus, an IRT chair might contact NMFS with a request for NMFS participation in the IRT. Bank and ILF sponsors might also contact NMFS directly to discuss a prospective project and/or review a prospectus or similar document describing their banking or ILF. The appropriate NMFS Branch Chief should work with staff to determine appropriate points of contact in other agencies and tribes with a potential interest in the proposal, including, but not limited to, the area IRT chairs.
2. *Staff Review.* For joint mitigation/conservation banks and ILFs, lead staff should participate in the IRT. For conservation banks and ILFs with no ACOE connection, lead staff should directly engage the prospective bank or ILF sponsor. For banks and ILFs based on DAARP, NOAA Restoration Center staff are likely to have the lead and other WCR staff should provide technical assistance as needed. For conservation bank and ILF overlay with a DAARP restoration that will allow for the use of credits for both ESA transaction and DAARP restoration requirements, i.e. a joint bank, the Restoration Center and NMFS habitat staff will work together. Lead staff should also communicate and work with their Branch Chief to assure complete coordination and consultation, as appropriate, with affected tribes.
3. *Management Review.* Lead staff should work with the Branch Chief to ensure they brief appropriate members of the Regional Leadership Team, including but not limited to the Assistant Regional Administrator (ARA) for the affected area office, as appropriate,

¹⁶ RIBITS is available at the following website: <https://ribits.usace.army.mil/>

during bank and ILF program development, review, and documentation of NMFS' support.

4. *Legal Review.* Lead staff should engage NOAA GC early in the bank or ILF program development process, ensuring GC are prepared to identify and assist with legal issues concerning NMFS's rights, commitments, and liabilities where NMFS proposes to sign bank and ILF program legal documents, and discuss these issues in advance of completing the bank and ILF program instrument. Lead staff should coordinate GC review of the bank and ILF program instrument in sequence with staff level and IRT (if there is one) review and revision.
5. *Conservation Bank and ILF Program Forms of Support.* As mentioned above, NMFS can participate in program development and bank/ILF program establishment as an IRT co-chair, party to the agreement, or as an IRT member. The form of NMFS' support for a bank/ILF program approval depends on the manner of participation, and ranges from NMFS signing the instrument (if IRT co-chair or party), to NMFS sending a letter of support for approval as a member of the IRT. Assistant Regional Administrators typically have the authority to sign instruments and letter on behalf of NMFS. For stand-alone banks or ILF programs, where NMFS is the only Federal partner, NMFS will usually sign the instrument as a party to the agreement. After legal review and document completion, lead staff should transmit the appropriate package of documents, through the Branch Chief, to the ARA.
6. *ESA/NEPA Compliance for Bank and ILF Program Support.* NMFS' support for a conservation bank or ILF program may create a nexus for NEPA review and ESA consultation, but this will depend on the specifics of the conservation bank or ILF program, and the nature of NMFS' support. NMFS's action to sign a bank or ILF agreement that affects listed species will require NMFS to conduct an ESA section 7 consultation on that action (i.e. an internal NMFS section 7 consultation). NMFS will also comply with NEPA when supporting banking and ILF proposals¹⁷. ACOE permit issuance to construct habitat improvements at the bank or ILF receiving site, or because of another federal agency's association with the establishment of a conservation bank or ILF receiving site, might trigger NEPA review and ESA consultation as well.
7. *Use of the Bank or ILF Program.* NMFS staff commonly recommend measures to avoid and minimize adverse project effects and to compensate for/offset remaining unavoidable adverse effects. In these recommendations, staff should inform action agencies and project applicants of NMFS-supported conservation banks or ILFs that provide species or habitat mitigation or conservation services relevant to the project impacts. Staff should encourage their use if it would lead to the best available conservation outcome for the species.
As mentioned above (Section V.A.1) NMFS staff can recommend buying credits from a NMFS-approved bank for a project within a bank's service area using conservation recommendations and EFH recommendations. Even better is if we can convince applicants and agencies to include the purchase of conservation credits in the proposed action. When consulting, in most cases, agencies are not required to offset impacts.

¹⁷ A NOAA NEPA categorical exclusion might be applicable to a conservation banking agreement.

However, NMFS staff is encouraged to discuss using NMFS-approved conservation banks or ILFs in the context of providing technical assistance, including in the context of ESA section 7 consultations. Only when incorporating the purchase of conservation credits in the T&Cs or RPAs are they binding (Section V.A.1). Whether NMFS is recommending or requiring purchase of credits, we cannot voice preference for a specific bank but should list all NMFS-approved banks and ILFs for which the project lays within the service area.

B. Questions for NMFS Staff Providing Technical Assistance for Bank and ILF Proposals

Staff should consider the selection, review and support of banks and ILFs in the context of the best available information regarding the conservation and recovery of listed species supported by restored and/or enhanced habitat conditions (habitat lift) created at the bank property. The following questions can assist NMFS staff working on proposals as they move forward toward bank or ILF program support. The questions help screen the biological or ecological service of the action, ensure consistency with regional conservation strategies and objectives, and promote early and consistent coordination with other agencies, partners, and stakeholders to evaluate the ability of the bank or ILF program to provide ecological offsets appropriate to debit projects in the service area.

1. Is the conservation bank or ILF program/receiving site located in a high priority conservation area for NMFS target species as described in species recovery plans or other similar species conservation strategies? Is it within designated critical habitat?
2. Does the conservation bank or ILF program/receiving site provide a clear conservation benefit to the target species? Does it address priority conservation needs or limiting factors for the target species?
3. Are the preservation, restoration, establishment, and/or enhancement plans for the proposed conservation bank or ILF program/receiving site consistent with the strategies, goals or objectives within relevant species recovery plans or other similar species conservation strategies?
4. Are the proposed preservation, restoration, establishment, and/or enhancement actions technically and biologically or ecologically feasible?
5. Are there unavoidable effects and resulting need for mitigation expected within the proposed service area to support a bank?
Does the conservation bank or ILF program/receiving site credit release schedule include physical and/or biological performance criteria necessary to ensure that the bank will be meeting species and habitat goals and objectives?
6. Does the conservation bank or ILF program include sufficient dedication of resources to monitor and ensure that the physical and biological goals and objectives of the bank or ILF receiving site will be met in perpetuity?
7. Have appropriate federal, tribal and/or state agencies been given adequate opportunity to participate as IRT members to the ILF program or conservation bank and have they been advised of the bank's or ILF program's development?

8. Is the proposed crediting/debiting methodology functional (appropriately complex), targeted to NOAA trust resources, and scientifically supported?

C. Questions for NMFS Staff Considering Using Credits to Offset Unavoidable Impacts

NMFS staff have several options based on different statutes to incorporate conservation credits into consultations. As outlined above, these options include: (1) Working with applicant on incorporating conservation bank or ILF credits into the proposed action, (2) recommending purchase of conservation credits in conservation recommendations during ESA consultations, EFH consultations, and/or during FWCA coordination, (3) requiring purchase of conservation credits as RPAs or, in limited cases, as RPMs. The following are some questions NMFS staff may consider when discussing the prospect of using conservation bank or ILF program credits.

1. Does the project have unavoidable impacts or contribute to aggregate or synergistic effects detrimental to the species?
2. Is the project proponent willing to consider compensatory mitigation as part of the project description?
3. Is the lead federal action agency willing to include compensatory mitigation as a permit condition? If not, can NMFS staff develop a compelling argument that the action agency should include compensatory mitigation?
4. Is there a conservation bank or ILF program with a service area that encompasses the action area or is relevant to the project and that addresses key limiting factors? How much compensation is adequate to offset the impacts expected? How best to equate impacts to credits?

D. Conclusion

The West Coast Region developed this document to provide staff with insight into concepts, processes, and outcomes relevant to conservation banking and ILF programs. These types of agreements are valuable tools that can help the WCR achieve NMFS' mission while implementing our authorities. As with most reference documents, this document is not definitive and the suggestions included are not set in stone. Instead, the WCR seeks to constantly improve both our approach to developing conservation banking and ILF programs, our work with our partner agencies and tribes and stakeholders, and the integration of these types of agreements within our overall strategic toolbox.

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APPENDIX I: CURRENT STATUS OF CONSERVATION AND MITIGATION BANKING AND ILFs IN NOAA FISHERIES' WEST COAST REGION

March 2019

NOAA's National Marine Fisheries Service's (NOAA Fisheries) West Coast Region is currently engaged in a number of conservation banking and ILF program activities including operation of established bank sites, developing new banks, participation in IRTs of ILFs, developing regional and state-wide mitigation initiatives with state agencies, and interagency efforts to improve and maintain consistent coordination. A summary of these banking efforts is described below. Additional proposals for NMFS conservation banks are under review.

Blue Heron Slough Restoration and Conservation Bank

- Location in the Snohomish River estuary, Everett, Washington
- Established by Addendum No. 1 to the Puget Umbrella Agree with Wildlands, Inc. in 2008; Addendum No. 1 revised in 2014.
- 354 acres (conservation easement covers 344 acres)
- NMFS species include Puget Sound Chinook salmon (*Onchorhynchus tshawytscha*), Steelhead (*O. mykiss*). Could also address habitat needs for Bull trout (*Salvelinus confluentus*)
- Credits derived in discount service-acre years using Habitat Equivalency Analysis based on importance of future (but presently non-existent) juvenile rearing habitat for salmon when the restoration is completed.
- Service area occupies a portion of Snohomish River Basin, through the Snohomish River estuary, and southward for a portion of the Puget Sound ending at the northern end of Vashon Island.
- Contacts: David Hirsh, NMFS Oregon Washington Coast Area Office, david.hirsh@noaa.gov; Julie Maddox, Wildlands Inc. (916) 435-3555

Cosumnes River Mitigation Bank

- Located on a floodplain adjacent to the Cosumnes River at the confluence of the Mokelumne River, in southern Sacramento County.
- Established in 2009, by ACOE, EPA, CDFW and NOAA Fisheries
- 472 acres
- NMFS targeted species: California Central Valley steelhead and Central Valley fall-run Chinook salmon
- Credits available for shaded riverine aquatic habitat, riparian habitat and perennial and seasonal wetland habitats
- Service area is defined by the legal boundaries of the Sacramento-San Joaquin River Delta
- Contacts: Monica Gutierrez, NMFS Central Valley Office, Monic.Gutierrez@noaa.gov; Travis Hemmen, Westervelt Ecological Services, (916) 646-3644, themmen@westervelt.com.

Coweeman Mitigation and Conservation Bank

- Located in south-west Washington, on the Coweeman River, approximately 3 miles above the Coweeman River's confluence with the Cowlitz River, 6th Field HUC 1708000508, Lower Columbia.
- Mitigation Banking Instrument signed 2016. ACOE and Washington State Department of Ecology Co-Chairs of IRT, NMFS is signatory party.
- Section 7 consultation for construction, NLAA, WCR-2015-3100.
- Anadromous fish habitat credits calculated using HEA for seven different habitat polygons. Universal credits available for ACOE mandated mitigation.
- The service area includes portions of the Lower Columbia River Basin and associated tributaries outside of WRIA 26 and portions of the Cowlitz River Watershed (WRIA 26). For details see Mitigation Banking Instrument Appendix E.
- Sponsor: Victor Woodward, Habitat Bank, LLC
- Contacts: Stephanie Ehinger, NMFS Lacey, WA, Stephanie.Ehing@noaa.gov;
Scott Anderson, NMFS Lacey, WA, Scott.Anderson@noaa.gov;

East Austin Creek Conservation Bank

- Located on Austin Creek, a tributary to the lower Russian River in Sonoma County
- Established in 2010 by NMFS
- 144 acres in Phase 1 and 296 acres Phase 2 (440 acres total)
- NMFS targeted species: Central California Coast (CCC) coho and CCC steelhead
- Credits for riparian and upland habitats that maintain natural stream processes
- Service area is a 2-tiered system. The primary service area includes the entire Russian River watershed, a portion of Mendocino County, most of Sonoma County, and all of Marin County, and may be utilized for mitigation and conservation. The secondary area includes the entire CCC coho and steelhead ESU/DPS, and may be used for conservation purposes.
- Contacts: Dan Wilson, NMFS California Coastal Office, (707) 578-8555;
dan.wilson@noaa.gov.

Nancy Summers, East Austin LLC, (707) 833-5027, summersng@saber.net

Fremont Landing Conservation Bank

- Located on a floodplain adjacent to the Sacramento River at the confluence of the Feather River in Yolo County, CA
- Established in 2006 by NMFS
- 100 acres
- NMFS targeted species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and California Central Valley steelhead
- Credits available for riparian floodplain forest, both riverbank shaded riverine habitat and off channel shaded riverine habitat
- Service area is defined by the Central Valley Chinook ESUs and Central Valley steelhead DPS. Including portions of Tehama, Shasta, Glenn, Butte, Colusa, Sutter, Yuba, Placer, Yolo, Solano, Sacramento, Amador, Contra Costa, San Joaquin, Calaveras, Alameda, Stanislaus, Tuolumne, Merced, and Mariposa Counties

- Contacts: Dylan VanDyne, NMFS Central Valley Office; Dylan.VanDyne@noaa.gov
Julie Maddox, Wildlands Inc. (916) 435-3555; jmaddox@wildlandsinc.com

Hood Canal ILF

- Provides mitigation for stream, wetland, and nearshore habitat impacts in Hood Canal, WA. The US Navy has been the main user of the program.
- Receiving sites mix of preservation and restoration.
- More information at <http://hccc.wa.gov/content/mitigation>
- Sponsor: Hood Canal Coordinating Council
- Contacts: David Hirsh, NMFS Oregon Washington Coast Area Office, david.hirsh@noaa.gov; Jeff Vanderpham, NMFS Oregon Washington Coast Area Office; Patty Michak, pmichak@hccc.wa.gov

Liberty Island Conservation Bank

- Located at the southern end of the Yolo Bypass on the north east portion of Liberty Island in the Sacramento-San Joaquin River Delta in Yolo County, CA
- Established in 2010, by USFWS, CDFW, and NOAA Fisheries
- 186 acres
- NMFS targeted species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and California Central Valley steelhead
- Credits available for shaded riverine aquatic cover and apply to tidal channels and marsh, riparian and seasonal floodplain habitats
- Service area is defined by the legal boundaries of the Sacramento-San Joaquin River Delta, including portions of Yolo, Solano, Sacramento, San Joaquin, Contra Costa, and Alameda Counties
- Contacts: Brycen Swart, NMFS Central Valley Office; Brycen.Swart@noaa.gov
Julie Maddox, Wildlands, Inc. (916) 435-3555; jmaddox@wildlandsinc.com

North Delta Fish Conservation Bank

- Located at the southern end of the Yolo Bypass adjacent to the Liberty Island Conservation Bank in the Sacramento-San Joaquin River Delta in Yolo County, CA.
- Established in 2013 by USFWS, CDFW, and NOAA Fisheries (Note, as of August 20, USFWS and CDFW are still reviewing)
- 811 acres
- NMFS targeted species: Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and California Central Valley steelhead
- Credits are available for shaded riverine aquatic cover, and apply to tidal channels and marsh, riparian and seasonal floodplain habitats
- Service area is defined by the legal boundaries of the Sacramento-San Joaquin River Delta
- Contacts: Brycen Swart, NMFS Central Valley Office; Brycen.Swart@noaa.gov
Cindy Tambini, Wildlands, Inc. (916) 435-3555; ctambini@wildlandsinc.com

Port of Los Angeles Harbor Habitat Mitigation Bank

- Located in the Port of Los Angeles within San Pedro Bay
- Established in 2017, by ACOE, EPA, NMFS, and FWS. The Bank incorporated credits and concepts from previous resource agency agreements.
- The Bank consists of seven sites, totaling approximately 374 acres. At time of signing, Bank contained 84.1 enhanced harbor habitat credits and 9.75 constrained harbor habitat credits.
- Credits from Bank Sites located in Constrained Harbor Habitat may only be used to mitigate for loss of Constrained Harbor Habitat, and Credits from Bank Sites located in Enhanced Harbor Habitat may be used to mitigate for loss of Constrained, Standard, or Enhanced Harbor Habitat.
- POLA Harbor Habitat is EFH for Coastal Pelagic Species and Pacific Groundfish Species FMPs.
- Service area includes all of the Port of Los Angeles.
- Contacts: Bryant Chesney, NMFS Protected Resources Division, (562) 980-4037, Bryant.Chesney@noaa.gov

Restoration, Mitigation, Conservation, and joint Banks associated with the Portland Harbor Superfund Site

- Located in the lower Willamette River, Oregon
- The Portland Harbor trustees are working with numerous entities to develop restoration sites to settle NRDA liabilities. The first of those sites, Alder Creek, began construction in summer 2014.
- Some entities are interested in creating overlay banks with credits available for both NRDA settlements and ESA mitigation.
- Contact: Nancy Munn, NMFS Interior Columbia Basin Office, (503) 231-6269, nancy.munn@noaa.gov

San Diego Bay Eelgrass Mitigation Bank

- Eelgrass mitigation sites are located in various areas of San Diego Bay
- Established in 2008, by ACOE, Navy, and NMFS. FWS and the California Department of Fish and Wildlife (CDFW) are not signatory, but are part of the IRT.
- 24.2 acres of eelgrass habitat
- Eelgrass habitat in San Diego Bay is HAPC for Pacific Groundfish Species FMP, foraging habitat for listed green sea turtles, and nursery habitat for economically important fishery species in southern CA.
- The Bank will be used for compensatory mitigation for impacts to eelgrass associated with military construction projects, operations and training in San Diego Bay.
- Service area includes all of San Diego Bay.
- Contacts: Bryant Chesney, NMFS Protected Resources Division, (562) 980-4037, Bryant.Chesney@noaa.gov and Eric Chavez, NMFS PRD, (562) 980-4064, Eric.Chavez@noaa.gov.

Wapato Valley Conservation and Mitigation Bank

- Mitigation Banking Instrument expected to be signed in late 2019. ACOE and Washington State Department of Ecology Co-Chairs of IRT, NMFS is signatory party.
- 876-acres of restored Columbia River floodplain habitats.
- Salmonid credits available as DSAYs, calculated using the Lower Columbia River Floodplain Habitat Values Model in concert with HEA.
- More information at: www.wapato-valley.com
- Sponsor: Plas Newydd Farm Conservation Program
- Contacts: Stephanie Ehinger, NMFS Lacey, WA, Stephanie.Ehing@noaa.gov; and Kelley Jorgensen, kjorgensen@pnfarm.com

APPENDIX II: HABITAT EQUIVALENCY ANALYSIS

A. Introduction

Information presented in this appendix was derived primarily from a NOAA document titled “Habitat Equivalency Analysis: An Overview” (Damage Assessment and Restoration Program NOAA Department of Commerce, March 21, 1995 (Revised October 4, 2000 and May 23, 2006)) and Ehinger et al., 2015. Habitat Equivalency Analysis (HEA) was originally developed as a methodology to determine compensation for injuries to natural resources in Natural Resource Damage Assessments (NRDA) under the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”; 42 U.S.C. § 9601 et seq.), the Clean Water Act (33 U.S.C. § 1251 et seq.), the National Marine Sanctuaries Act (16 U.S.C. § 1431 et seq.), and the 1990 Oil Pollution Act (“OPA”; 33 U.S.C. § 2701 et seq.). The principal concept underlying the method is that the public can be compensated for past losses of habitat resources through habitat replacement projects providing additional resources of the same type. Natural resource trustees have employed HEA for groundings, spills and hazardous waste sites. Habitats involved in these analyses include seagrasses, coral reefs, tidal wetlands, salmon streams, and estuarine soft-bottom sediments. Increasingly, NMFS has begun using HEA as a framework for evaluating the habitat content of conservation banks. HEA has also been shown to be a useful tool for quantifying habitat impacts in ESA effects analysis of a proposed action that will make use of conservation bank, ILF, or third party responsible credit transactions. For example, HEA has been used to calculate impacts and credits in the Puget Sound Nearshore as they relate to the Regional General Permit 6 (Overwater Structures) consultation (NMFS 2016).

B. Natural Resource Damage Assessments and Habitat Equivalency Analysis

Completing a NRDA claim requires primary restoration of the damaged resources to baseline conditions, compensation for the interim loss of those resources until the restoration matures to baseline conditions, and the reasonable costs of performing the damage assessment. Ensure one-to-one replacement of services provided by the affected resources requires identifying and quantifying injury, developing primary and compensatory restoration actions, and scaling restoration to ensure replacement occurs. To scale restoration actions, NOAA uses HEA.¹⁸

For compensatory restoration actions, the scaling question is “what amount of compensatory restoration action will compensate for the interim loss of natural resources and services from the time of the incident until full recovery of the resources?” There are two major scaling approaches: the valuation approach and the simplified service-to-service approach, which applies under certain conditions.

The HEA is an example of the service-to-service approach to scaling. In seeking to ensure a one-to-one replacement of lost habitat services with restoration project services NOAA uses

¹⁸ This description characterizes the process outlined in the natural resource damage assessment (NRDA) regulations implementing OPA (15 CFR Part 990) and in the proposed statutory changes to the CERCLA NRDA provisions (43 CFR Part 11).

HEA in assuming a one-to-one trade-off in the services the damaged or lost resources provide. For example, rather than focusing on replacing a lost acre of marsh with another acre of marsh, HEA enables the user to ensure that the services provided by that particular lost acre are replaced on a one-to-one basis. The HEA thus enables the user to determine how many acres of less productive marsh would be needed to fully supply to services formerly supplied by the lost marsh. HEA is applicable so long as the services provided are comparable. The assumption of comparable services between the lost and restored habitats may be met when the proposed restoration action provides services of the same type and quality and of comparable value as those lost due to injury. In this context, there is a one-to-one tradeoff between the resource services at the compensatory restoration site and the injury site. The HEA scaling analysis simplifies the quantification of a restoration action by focusing on the quantity of discounted replacement services equal to the quantity of discounted services lost due to the injury rather than on acres and area-based ratios.

C. Habitat Equivalency Analysis Use in Conservation Banking

Similar to the application of HEA in NRDA, the damages from lost services caused by development projects can be analyzed using HEA. Instead of using HEA to scale restoration project service values to those damages, HEA can be used to determine the number of credits needed from a conservation bank or ILF to replace the lost services from development actions consulted on under ESA section 7 or MSA.

The HEA method assesses ecological services lost or gained by taking into consideration: (1) the relative values of the subject habitat before and after a project is implemented, (2) the size of the area affected where the damage (or habitat improvement) has occurred, (3) the time it takes for altered habitats to reach fully functioning condition, (4) the duration for which the altered habitat is expected to remain in place (e.g., how long a pier will remain in place, or a restored habitat is expected to exist), and (5) a discounting factor. The HEA estimates the total net loss or gain of ecosystem service to an affected area with these five input parameters. The discounting factor, as in economics, is used to account for the difference between when the loss in ecosystem service occurs and when the restored habitat becomes fully functional (NOAA 1999, Ray 2008).

The functional loss or gain of the ecosystem services assessed with HEA is expressed in a dimensionless unit known as Discounted Service Acre Years (DSAYs). DSAYs are the common habitat currency of the HEA model. For example, the number of DSAYs lost through a development-related impact indicate how much restoration will be needed to offset the lost habitat functions.

The underlying concept of using a common currency to express functional habitat loss and gain is known as ecological equivalency. Ecological equivalency is a service-to-service approach that assumes that the ecological functions and services for a species or group of species that are gained from habitat at a restored site fully offset the functions and services lost at an impacted site, when discounting and time to full function at the restored site are incorporated into the analysis. Applying HEA requires balancing reductions in habitat quality against gains from restoration actions without losing limiting habitat functions (Cacela et al., 2005). Strange et al. (2002) explain, that the underlying assumption of HEA is that the public will accept a one-to-one trade-off between a unit of lost habitat services and a unit of restoration project services. Thus,

there is not necessarily a one-to-one trade-off in terms of specific resources but rather in the services they provide for the species impacted.

Necessary conditions for the applicability of HEA include that (1) a common metric can be defined for quantifying habitat values (The habitat value needs to captures the level of services provided by the injury and replacement habitats.), and (2) the changes in resources and services (due to the injury and the replacement project) are sufficiently small that the value per unit of service is independent of the changes in service levels.¹⁹ To ensure consistent HEA use requires staff-wide coordination and familiarity with the basis for each bank's initial credit evaluation, especially the method of quantifying habitat values.

Finally, NMFS incorporates a standard 3 percent discounting factor when using HEA for quantifying habitat impacts and benefits, expressed in DSAYs. This discounting rate is based on economic theory that contends that the public places a greater value on services obtainable presently versus the enjoyment they could obtain from those same services in the future. For further information on the HEA procedure and DSAYs see NOAA (1999, revised 2006), and Strange et al. (2002).

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¹⁹ A counterexample shows when this condition is not satisfied. Consider the value of harvesting another salmon when salmon are in abundant supply versus the value of another salmon when the harvest has failed in Alaska. The value of providing another pound of salmon may be substantially greater when the salmon are in scarce supply, all else equal.

