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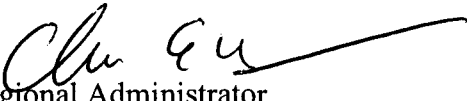
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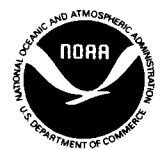
MEMORANDUM FOR: PRD Office Supervisors
Southwest Region
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FROM: Chris Yates 
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SUBJECT: Guidance for the review, establishment, use and operation
of conservation banks and in-lieu fee mitigation programs

This memorandum transmits guidance that will help NOAA's National Marine Fisheries Service (NMFS) Southwest Region (SWR) Protected Resources Division understand in-lieu fee (ILF) mitigation programs and conservation banking as it pertains to fulfilling PRD's mitigation and conservation responsibilities under the Endangered Species Act (ESA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and the Fish and Wildlife Coordination Act (FWCA). This memorandum also transmits a summary of ongoing conservation banking activities in the SWR. The guidance will assist us in evaluating proposals to review, establish, operate and use conservation banks and ILF mitigation programs.

Federal rules were recently issued by the Environmental Protection Agency and the U.S. Army Corps of Engineers that set standards on the establishment and use of banks to ensure that banks and ILF will meet their stated conservation goals of creating, maintaining, and protecting habitats in perpetuity. An increasing number of conservation banks targeting NMFS species and their habitats are being proposed by bank sponsors. ILF type mitigation arrangements also have been used in the SWR. Conservation banks may have direct applicability to many of our ESA section 7 consultations, ESA section 10(a)(1)(B) permits, MSA Essential Fish Habitat consultations, and for coordination under the FWCA because they can provide a flexible means for offsetting unavoidable impacts to protected species and their habitats. Conservation banks can also provide opportunities for agencies seeking to use their programs and authorities to further their ESA section 7(a)(1) responsibilities beyond what is needed to offset their project impacts. Conservation banking programs have been broadly applied by the U.S. Fish and



Wildlife Service and the State of California, and their use by NMFS is limited but growing. As a result, a coordinated regional approach is needed within PRD.

Conservation banks and ILF programs provide a flexible means to meet a variety of mitigation and conservation needs. However, conservation banks should be considered as the last step in a mitigation hierarchy where the priority for actions is to avoid, minimize, and then mitigate. In some cases, the establishment and use of conservation banks may not be a good match for the conservation needs of a species. Therefore the establishment, operation and use of conservation banks and ILF programs should be considered on a case-by-case basis where careful consideration is given to ensure that these programs ultimately enhance the conservation needs of the target species.

This guidance is intended to help NMFS SWR PRD staff: (1) understand the concepts, values and processes of mitigation, with a focus on conservation banks and ILF programs; (2) evaluate the use of banks and ILF programs to meet the conservation needs of Federally listed species; and (3) provide consistency in the review, establishment, use, and operation of conservation banks and ILF programs. The guidance also establishes administrative procedures for NMFS' internal biological and legal review.

Attachment: NMFS Southwest Region Protected Resources Division Guidance for the review, establishment, use, and operation of conservation banks and ILF mitigation programs.

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**NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST REGION – PROTECTED RESOURCES DIVISION
GUIDANCE FOR THE
REVIEW, ESTABLISHMENT, USE, AND OPERATION
OF CONSERVATION BANKS AND IN-LIEU FEE MITIGATION PROGRAMS**

I. Introduction:

Conservation banking applies the concept of wetland mitigation banking to endangered and threatened species conservation (USFWS 2003). Wetland mitigation banking is a Federally regulated system that provides an opportunity for impacts to wetlands at a project location to be offset by funding the preservation, restoration or creation of the same type of wetland habitat at another location. The habitat at the mitigation bank is represented by credits that can be purchased by those impacting wetlands to compensate or offset their impacts. The process is essentially a form of compensatory mitigation, where the offsetting of unavoidable impacts is used to replace the loss of wetland, stream, and/or other aquatic resource functions.

In wetland mitigation banking, the goal is to replace the function and values of the specific wetland habitats that will be adversely affected by a proposed project. In conservation banking, the goal is to offset adverse effects to species and their habitats at a conservation bank where credits represent functional habitat types. The two types of banks share many similarities, and the rules and policies guiding operations of the two types are converging.

In-lieu fee (ILF) programs involve the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements. Similar to a mitigation bank, an ILF program sells compensatory mitigation credits to entities whose obligation to provide compensatory mitigation is then transferred to the ILF program sponsor. ILF mitigation programs can provide ecologically beneficial compensatory mitigation in areas not served by mitigation banks.

Conservation banking and ILF programs can be attractive to landowners and land managers because they allow mitigation and conservation to be implemented within a market framework, where the purchase of conservation bank credits for project related impacts can be offset through a one-time credit purchase. This relieves the burden of a project sponsor having to complete and maintain their own mitigation.

These instruments can be attractive to resource agencies, because banks can be located in biologically strategic locations that maximize the benefits to species, and ILF programs and conservation or mitigation banks can consolidate funds from numerous small projects and apply them to a single, larger scale project. Another attraction is that the effectiveness of conservation banks and ILF programs is generally greater than permittee-driven mitigation, because the banks

are almost always larger than individual permittee mitigation sites and the resource functions at a bank site will be monitored, managed and protected in perpetuity. In general, conservation banks and ILF programs bring together financial resources, planning, monitoring, and scientific expertise that is not practical for smaller conservation and mitigation actions (USFWS 2003).

Conservation banks may have direct applicability to many of our Endangered Species Act (ESA) section 7 consultations, ESA section 10(a)(1)(B) programs, Magnuson-Stevens Fishery Conservation and Management Act (MSA) Essential Fish Habitat (EFH) consultations and Fish and Wildlife Coordination Act (FWCA) coordination. Banks can be used for the conventional purpose of providing compensatory mitigation, but also can be used in the context of providing conservation recommendations to agencies interested in meeting their ESA section 7(a)(1) responsibilities to contribute to species recovery.

A key concern that has been addressed in this guidance is that mitigation and conservation banking can steer projects away from onsite and/or in-kind mitigation and conservation, which has the potential to complicate mitigation monitoring and effectiveness. The banking guidance described here is intended to address these concerns directly through a consistent review, establishment, use and operation of conservation banks and ILF mitigation programs in NMFS's SWR.

II. Mitigation

The term mitigation is defined differently by various Federal and State laws, regulations and policies. In a broad sense, mitigation may include a range of measures from complete avoidance of adverse effects to compensation for adverse effects by preserving, restoring or creating similar resources at onsite or offsite locations. The U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) issued regulations governing compensatory mitigation to offset unavoidable adverse effects to waters of the United States authorized by Clean Water Act section 404 permits and other permits issued by the Corps (73 FR 19594; April 10, 2008). In those regulations (33 CFR 332.2 and 40 CFR 230.92, respectively), the Corps and EPA, define "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, compensatory mitigation is presented as a basic conservation strategy, not as an additional requirement for avoiding, minimizing, restoring or offsetting potential or unavoidable impacts from an action.

As the Corps and EPA described in their final rule issuing the regulations described above for wetlands compensatory mitigation (73 FR 19594; April 10, 2008), there are three implementation mechanisms for providing compensatory mitigation, which are presented in the order of increasing preference: permittee-responsible compensatory mitigation, ILF mitigation, and mitigation banks. Permittee-responsible mitigation, in which the permittee retains responsibility for ensuring that required compensation activities are completed, is the most traditional form of compensation and continues to represent the majority of compensation acreage provided each year. Permittee-responsible mitigation can be located at or adjacent to the impact site (*i.e.*, on-site compensatory mitigation) or at another location generally within the

same watershed as the impact site (*i.e.*, offsite compensatory mitigation). ILF mitigation and mitigation banks both involve off-site compensation activities generally conducted by a third party such as an ILF program sponsor or a mitigation bank sponsor.

The National Research Council's Committee on Mitigating Wetland Losses was established to evaluate the effectiveness and success of wetlands compensatory mitigation required under Section 404 of the Clean Water Act (CWA) and found that common mitigation approaches showed a wide degree of variation in meeting performance goals, and although none of the mitigation approaches were meeting the no-net-loss standard of the CWA, mitigation banks had higher levels of success than ILF programs and permittee-responsible mitigation (NRC 2001). The committee made a number of recommendations for improving banking and ILF programs that have subsequently been incorporated into Federal rules and policies.

III. Conservation Banks and In-Lieu Fee Programs

A conservation bank is a parcel of land containing natural resource values that are conserved, restored, created and managed in perpetuity for Federal and State protected species and used to offset unavoidable impacts to comparable resource values occurring elsewhere on non-bank lands (Mead *in* Carroll *et al.* 2008). The resource values contained within the bank are translated into quantified credits that may be sold by the banker to parties that need to compensate for the adverse effects of their activities, or to contribute to the conservation of protected species and their habitat.

Those resource values are conserved and managed in perpetuity through a conservation easement held by an entity responsible for enforcing the terms of the easement for the target protected species. A conservation bank provides long term financial assurances, such as a non-wasting endowment funded by the bank sponsor, to ensure the targeted resource values are maintained. Conservation banks also include operation and maintenance plans, long-term conservation plans, monitoring requirements, and ecologically based performance standards.

The total estimated values of the targeted natural resources are quantified into total "credits" available at that bank. Project impacts are quantified similarly, and are called "debits". Project proponents are able to meet their compensatory mitigation and conservation needs through the purchase of credits from a conservation bank that has a service area encompassing the project site.

ILF-programs often result in the same outcome; however, the fees are collected prior to establishing an on-the-ground conservation/restoration project, and there is less certainty regarding the location of the project and the resources that will ultimately be addressed. In their 2008 final rule (73 FR 19594, 19599-19600; April 10, 2008), the Corps and EPA added requirements for ILF programs to improve accountability and performance to levels comparable to conservation and mitigation banks.

Conservation banks and ILF programs rely on a range of strategies to achieve localized conservation in perpetuity for listed species and their habitats. A bank or ILF program may address: (1) acquisition and protection of existing habitat through conservation easements; (2)

restoration or enhancements of disturbed habitat; (3) creation of new habitat; and (4) prescriptive management of habitats for specified biological characteristics. The fundamental strategy in establishing and operating banks and ILF programs is to provide ecologically beneficial compensatory mitigation in a targeted service area (USFWS 2003). Bank parcels and ILF projects are usually large enough to accommodate the mitigation or conservation needs of multiple projects.

IV. Mitigation Sequencing

Mitigation and conservation banking and ILF programs fit into a sequential hierarchy of approaches where the first step involves exploring all measures necessary to avoid adverse impacts to species, habitats and ecosystems. After all measures have been taken or explored to avoid potential impacts, measures are considered to minimize the effects through onsite and in-kind compensatory mitigation or conservation actions. The final step in the mitigation hierarchy involves off-site mitigation, where impacts are mitigated or conservation actions are implemented off-site at an appropriate location with the goal of offsetting unavoidable effects of an action or for providing conservation options that exceed mitigation requirements.

V. Consistency with the Endangered Species Act, the Magnuson-Stevens Fishery Management and Conservation Act and the Fish and Wildlife Coordination Act

ESA section 2(c)(1) declares the policy that all Federal agencies shall seek to conserve endangered and threatened species and utilize their programs and authorities to fulfill the purposes of the ESA, which include to conserve the ecosystems upon which Federally listed species depend, and to provide a program for the conservation of these species. Section 7(a)(1) of the ESA also directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species, and Section 10 provides an avenue for non-Federal entities to make the same contributions through Conservation Plans or species enhancement plans. Under the ESA, the term conserve means to use all means and procedures that are necessary to bring any endangered or threatened species to the point at which the protective measures of the ESA are no longer required (16 U.S.C. 1532(3)).

Although conservation banks and ILF programs are not expressly mentioned in the ESA or the implementing regulations in 50 CFR Part 402, ESA Section 7 and implementing regulations provide for NMFS to include with a biological opinion, as applicable: (1) conservation recommendations regarding discretionary measures that may be taken to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, (2) reasonable and prudent measures that are necessary or appropriate to minimize the impacts of the incidental take resulting from a proposed action, (3) and reasonable and prudent alternative actions that can be implemented to avoid the likelihood of jeopardizing the continued existence of a listed species or the destruction or adverse modification of critical habitat from a proposed action. In this context, conservation banking and ILFs provide programs to assist Federal action agencies in meeting their ESA section 7(a)(1) and 7(a)(2) responsibilities, and to provide a regulated, monitored and managed approach to minimize adverse effects of their actions.

Section 10(a)(1)(B) of the ESA authorizes the issuance of permit for the incidental take of endangered and threatened species to non-Federal entities for the implementation of habitat conservation plans (HCPs). The purpose of the HCP is to ensure that the effects of the permitted action on covered species are adequately minimized and mitigated and that the action does not appreciably reduce the survival and recovery of the species. Mitigation may include off-site protection of the listed species and its habitat and may take the form of purchasing credits in an approved conservation bank.

Similarly, Federal agencies consult with NMFS under the MSA and the FWCA. The MSA provides for designation of essential fish habitat (EFH) in Federal fishery management plans; requires Federal agencies 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. The FWCA requires Federal agencies to consult with the Federal and State fish and wildlife agencies regarding the impacts of water resource development projects¹ on fish and wildlife resources and to give wildlife conservation equal consideration with the water resource development project. Conservation banking and ILF programs can be used to help meet the consultation objectives of these statutes by providing conservation sites designed to provide specific types of habitat to the target species that are known to be affected by Federal actions.

As an example of the applicability of banks to offset unavoidable impacts, the Corps' (2007) Programmatic biological assessment for the Sacramento River Bank Protection Project, Phase II proposed a hierarchical approach to compensatory mitigation that included the use of conservation banks as a mechanism to fully offset project effects to listed salmon and steelhead. The approach uses the Standard Assessment Methodology (SAM) model to quantify spatial and temporal adverse effects to different life stages of fish affected by the levee repair projects. The first step is to avoid, to the maximum extent possible, adverse impacts to fish and fish habitat. The second step is to use the SAM model to quantify the adverse effects of a levee repair action. The third step is to model how much on-site habitat enhancement can be completed given certain site constraints or opportunities; and the fourth step uses the model to determine how much additional mitigation is necessary to fully mitigate for any remaining unavoidable impacts. The approach is designed to maximize onsite avoidance and spatial habitat mitigation, while unavoidable spatial and temporal adverse effects are mitigated offsite, but in-kind.

In another example, in addition to the integrated avoidance, minimization and conservation measures that many action agencies routinely include in their project designs, and which form the basis of our analysis of an action's effects, the NMFS Central Valley Office has been including the purchase of conservation credits as conservation recommendations under ESA section 7(a)(1) in technical assistance letters, concurrence letters and biological opinions. Many of these recommendations are accepted by project applicants and Federal action agencies and integrated into project implementation. The conservation benefits of these small purchases cumulatively contribute significantly to habitat restoration and recovery of listed species.

¹ 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).

VI. Applicability of Conservation Banking and In-lieu Programs to Highly Migratory Species Facing Degraded and Fragmented Habitat Conditions

The majority of existing conservation banks and ILF programs target terrestrial or aquatic species with a narrow home range. The concept of applying conservation banking and ILF programs to highly migratory species is new; however the concept of preserving and restoring habitat connectivity for migratory species across broad landscapes has been an applied part of conservation biology in terrestrial and aquatic ecosystems for decades.

For example, in the ocean, marine reserves have become a common approach to protect and improve habitat function, species diversity and to increase species abundance. Single, isolated marine reserves constitute the majority of marine reserves worldwide, typically with the goal of increasing species abundance at a local level (Gaines *et al.* 2010). There has been a recent movement to link marine reserves in networks that connect ecologically significant habitats for migratory species. Marine spatial planners have recognized that location, size, spacing, and configuration influences network effectiveness, and that optimal size and spacing of marine reserves in a network is strongly influenced by the spatial and temporal movement of the target species (Gaines *et al.* 2010).

Gaines *et al.* (2010) also describe that habitat representation and replication are important considerations that are generally applicable to establishing a network of reserves. Reserve placement in all major marine habitats (*i.e.*, representation) is a key network feature for meeting conservation goals, because marine species tend to segregate by habitat and often use different habitats during different life stages. Placement of multiple reserves in each habitat (*i.e.*, replication) promotes persistence as described above, but also provides insurance against catastrophes.

NMFS has broad latitude in working internally and with conservation bankers to identify bank locations and and restoration designs that promote species survival, and enhances conservation of the target species. Area offices should consider developing species, ESU or DPS specific guidance on potential banking applications in their area that may apply to migratory species. NMFS, U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) are in the process of developing banking guidance for conservation bankers for the Sacramento-San Joaquin River Delta. The Delta's ecosystem is used by several highly migratory species of fish and has been highly degraded by water management, flood control, agriculture and other forms of development for over 100 years. The Delta guidance will provide direction to bankers that will help them pursue properties and habitat types in a network that the resource agencies believe must be preserved and restored to recover the Delta ecosystem. This approach recognizes that the resource agencies have the ability to direct conservation bankers toward areas that are needed to restore ecosystem function for the species.

VII. Policies, Guidance, and Regulatory Authorities

Wetland mitigation banking and ILF programs were developed through the implementation of section 404 of the CWA and section 10 of the Rivers and Harbors Act; while species conservation banking has emerged through the implementation of sections 7 and 10 of the ESA.

Federal policy guidance for mitigation and conservation banking began in the 1990's to address wetland mitigation and continues to evolve as more species-specific and ecosystem-based mitigation and conservation approaches develop.

In 1995, the Corps, EPA, Department of Agriculture's Natural Resources Conservation Service (NRCS), USFWS, and NMFS issued policy guidance regarding the establishment of mitigation banks for the purpose of providing compensation for adverse impacts to wetlands and aquatic resources (60 FR 58605; November 28, 1995).

In 2000, the Corps, EPA, USFWS, and NMFS, issued guidance for the use of ILF arrangements to provide compensatory mitigation for Department of the Army permits issued under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act (65 FR 66914; November 7, 2000).

In 2003, the USFWS issued guidance of the establishment, use and operation of conservation banks (68 FR 24753; May 8, 2003). The USFWS guidance is similar to the 1995 interagency mitigation guidance, but focuses on species conservation, and provides guidance to agency staff to help evaluate the use of conservation banks to meet the conservation needs of listed species, and to provide consistency and predictability in the establishment, use and operation of banks.

In 2006, the NMFS SWR signed a 7-agency Memorandum of Understanding (MOU) (CNRA *et al.* 2006) that established a framework for developing and using combined and coordinated approaches to conservation and mitigation banking in California. Other signatory agencies include: the California Resources Agency, CDFG, the Corps, the USFWS, the EPA, and NRCS.

In 2008, the Corps and the EPA issued a Final Rule regarding compensatory mitigation for unavoidable impacts to wetlands, streams, and other aquatic resources authorized or permitted by the CWA section 404 permits or other Department of the Army permits (73 FR 19594; April 10, 2008). The rule addresses permittee-responsible compensatory mitigation, mitigation banking and ILF mitigation programs. For impacts authorized under CWA section 404, compensatory mitigation is not considered until after all practicable steps have been taken to first avoid and minimize impacts to the aquatic ecosystem. This Final Rule replaces previous Corps and EPA mitigation guidance and improves the planning, implementation, and management of mitigation projects by: (1) emphasizing a watershed approach in selecting mitigation project locations; (2) specifying the components of a complete mitigation banking plan, including assurance of long-term protection of compensation sites, financial assurances, and identification of the parties responsible for specific project tasks; and (3) requiring measurable, enforceable ecological standards and regular monitoring for all types of compensation. The regulations also require a public review and comment period for mitigation bank proposals. Conservation banks are not bound by these regulations unless the conservation bank is also a Corps- and EPA-approved mitigation bank, and NMFS, USFWS, and CDFG have all sponsored banks without the participation of the Corps and the EPA.

In 2011, the NMFS SWR, signed an 8-agency MOU (CNRA *et al.* 2006) with the purpose of refining the 7-agency MOU framework for developing and using combined or coordinated approaches to mitigation and conservation banking and ILF programs in California and to bring

the MOU more in line with the 2008 rule. The coordinated approach will aid in more rapid and conclusive review, comment, and completion of the review of proposed mitigation and conservation banks and ILF programs. A clearly defined process for development, review and approval of standardized banking and ILF program documents will facilitate and accelerate the establishment process for banks and ILF programs, simplify and clarify the process for bank sponsors and ILF program sponsors, save agency staff time, and reduce the cost of evaluating proposed bank and ILF proposals. Other signatory agencies include: the California Resources Agency, CDFG, the Corps, the USFWS, the EPA, and NRCS, and the State Water Resources Control Board.

VIII. Development and Establishment of Conservation Banks and ILF Programs

A. Goals and Objectives

The goal of establishing and operating conservation banks and ILF programs is to provide an efficient and effective mechanism to offset the adverse effects of actions that may adversely affect species and ecosystems with the overall purpose of contributing positively to their conservation. In wetland mitigation banking, the objective is to replace the type and function of impacted wetlands; while in conservation banking the objectives are more complex and often focus on reversing habitat fragmentation or increasing the abundance or survival of protected species. Conservation banks and ILF programs should address key threats to a species. Species recovery plans, conservation strategies, and this regional guidance should be the primary resources used to develop the goals and objectives for establishing individual conservation banks. 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 bank or ILF program will contribute to the conservation of Federally listed species.

B. Establishment

Conservation banks are established through a formal agreement between a bank sponsor and the NMFS, while ILF programs are established between an ILF program sponsor and NMFS. NMFS has full discretion to approve or recommend changes to proposed conservation banks or ILF programs, based on the anticipated conservation benefits to listed species. This agreement is called the Conservation Bank Enabling Instrument (CBEI)². The CBEI defines the establishment, use, operations, monitoring and maintenance of the bank. The CBEI is proposed and supported by several exhibits, including:

- *Prospectus*: Bank sponsors propose bank sites through a prospectus. The prospectus serves as an initial proposal to secure a property for preservation and/or restoration purposes and includes a preliminary restoration and conservation strategy. If approved, the bank sponsor will proceed with the development of a CBEI.

² Another formal agreement, the Bank Enabling Instrument, is used for banks that combine wetland mitigation and conservation goals. ILF programs have similar formal agreements.

- *Location and service area maps:* The service area is the area in which credits are available to offset project impacts. The service area should be a biologically justifiable area, but may also be delineated based on local land use or management jurisdictions.
- *Conservation, habitat development and management plan:* A long-term management plan that has the primary goal of managing the habitat for the species for which the site was established should be developed. The plan should describe the biological performance criteria expected of the site, and an adaptive strategy for managing biological performance over time.
- *Operations and maintenance plans:* The plans address anticipated annual operations and maintenance actions and should have sufficient detail to identify the specific operations and maintenance actions that will need to be taken to continue to meet the biological performance criteria described in a conservation, habitat development and management plan.
- *Biological resource evaluation:* The biological resource evaluation provides a summary of existing resources that may be affected or benefit from the establishment of the bank site.
- *Real estate records and property assessment:* The real estate records and property assessment provide a summary and explanation of each recorded or unrecorded lien or encumbrance on, or interest in, the property.
- *Credit system and release schedule:* Credits are the quantification of a species' or habitat's conservation value over time. Credit systems are usually based on spatial and temporal improvements to habitat or ecosystem function. Credits at a restoration site generally are allocated over time based on a site's ability to meet agreed-upon biological performance standards.
- *Bank endowment and management account:* Sufficient funding should be provided to implement the management and operations and maintenance plans and to provide for certain contingencies pursuant to the adaptive management strategy for the site. Funding of conservation and mitigation banks generally takes the form of a non-wasting endowment that generates enough interest to cover the management costs without depleting the principle of the fund. The endowment should be provided up front or completely funded within the first few years of establishing the site.
- *Perpetual Conservation Easement:* A perpetual conservation easement should be established for the site. The easement should identify certain land management actions that are allowed or prohibited on lands to promote the conservation of certain species or habitats. The easement should be held by a third party conservation organization.

C. Site Selection and Eligible Lands

Conservation banks tend to be market-based enterprises, and bank site selection is often driven by market demand. Essentially this means that conservation bankers target areas where there are conservation and mitigation demands. Because of this, banks tend to be located close to project impacts. Although this is logical when considering common mitigation sequencing where avoidance followed by onsite and in kind mitigation is prioritized over off site or out of kind mitigation, the highly migratory nature of many species managed by NMFS lends itself to considering the biological significance of a bank site under the overall context of species viability.

Bank site selection should be guided by a conservation strategy or other framework that identifies regional conservation goals, objectives and criteria for restoration site selection. The purpose of this approach is to avoid taking randomly selected restoration actions and to encourage restoration planning that results in larger interconnected preserves with greater ecological value. The location of a proposed bank is critical in evaluating its potential conservation value. Banks should be located in areas identified in recovery plans as high priority and should preserve, restore, and enhance ecosystem functions for the benefit of targeted, listed species. Bank site selection should ensure the sustainability and improvement of the quality and quantity of aquatic resources within watersheds. Bank sites should address limiting factors and threats to the listed species. Hydrology, physical and chemical characteristics, compatible land uses, habitat connectivity, habitat function, adjacent land uses, size, landscape position, suitability for restoration, benefits to other native listed or non-listed species, and other factors should be considered. Bank sites may include terrestrial resources that contribute to or improve the overall habitat functions for the listed species, such as upland forested areas that contribute large woody debris and enhance stream habitat complexity.

Evaluating the conservation value of ILF programs and conservation banks needs to be informed by data from existing banks, when such info is available. Conservation value evaluation should also be considered in the context of information on specific populations to be affected and their habitats, and informed by recovery strategies identified in recovery plans. This evaluation will assist NMFS and conservation bank sponsors in developing biologically meaningful crediting systems and biologically based performance criteria.

Conservation banks and ILF programs may be established on lands where managing agencies maintain or will maintain habitat in the future. Land used to establish conservation banks and ILF programs must not be previously designated for conservation purposes (*e.g.*, parks, green spaces, municipal watershed lands), unless the proposed designation as a bank would add additional conservation benefits. Where conservation values have already been permanently protected or restored under other Federal, State, Tribal, or local programs benefitting Federally listed species, the bank design and credit system would need to demonstrate an ecological improvement that benefits the species that would not occur but for the establishment of the bank.

D. Service Area

A service area defines the geographic area where the conservation bank or ILF program's credits may be used. When a proposed action cannot fully mitigate for its adverse impacts and occurs within the service area of a conservation bank or ILF program, the proponents of the action may purchase credits from that bank or pay into the ILF program. Delineation of the service area should be biologically relevant and based on the conservation needs of the listed species. Service areas can be based on a watershed, eco-region, or other bio-geographic strata. As a general rule, service areas for mitigation purposes should not include the entire range, ESU or DPS of a species, but should be based on a smaller scale such as a watershed, group of watersheds or other relevant ecosystem unit. The general concept in establishing a service area is that the mitigation site will provide benefits to the same populations that are affected by an adverse action that affects the population on non-bank lands. The service area may be larger if the purpose of purchasing the credits is to simply provide a conservation benefit to the species and is not for mitigation purposes. Exceptions to the general limitation on service areas may be appropriate on a case-by-case basis to support conservation of the targeted listed species.

E. Consideration of Species Viability when Evaluating Prospective Bank Sites and ILF Programs

In 2000, NMFS developed the viable salmonid population (VSP) concept as a working framework for assessing species viability (McElhany *et al.* 2000). Under this framework, salmonid viability is determined using four basic parameters: (1) population abundance, (2) population growth rate, (3) population spatial structure, and (4) diversity. Although developed specifically for salmon and steelhead, the VSP concept can be readily applied to other species and is a useful framework to consider when evaluating how proposed conservation bank sites might affect the viability of individuals, populations or ESUs/VSPs (Cannon and Brown, *in* Carroll *et al.* 2008). Following are some examples of how the VSP can be conceptually applied in evaluating ILF programs or conservation bank proposals:

Population abundance and growth rate: In general, a species with low abundance and negative growth rates faces a greater risk of extirpation than those that are more abundant. Conservation banks can address these parameters by restoring or creating valuable habitats or by strategically locating bank sites in biologically significant areas that increase survival, abundance and population growth. For example, frequently inundated floodplains are known to increase the growth rate and survival of salmon and steelhead (Sommer *et.al.* 2001). Conservation banks that restore and protect floodplain habitats would be expected to have a positive contribution on population abundance. Similarly, a large floodplain conservation bank located below the confluence of two salmon-bearing streams may provide benefits to more individuals or populations of a species and would be expected to have a greater influence on population abundance and growth than a similar, but smaller floodplain conservation bank located on one of the tributaries.

Spatial structure: This parameter addresses the geographic distribution of populations across their historic or existing range. Banking programs can apply this parameter by

strategically locating individual bank sites to benefit multiple populations, or by preserving, restoring and creating habitats across broad spatial scales and ecotypes.

Diversity: Many species exhibit diversity within and across populations. Genetic diversity is an important part of this parameter, but it also considers life history diversity and takes into account variable environmental factors such as habitat availability and utilization over multiple spatial and temporal scales. Conservation banks can take this parameter into consideration by developing habitat restoration and management strategies that provide functional habitats under different environmental conditions. For example, a salmon conservation bank may preserve, restore or create floodplain habitats that are available to target species under high flow conditions. The same bank may also preserve, restore or create habitats such as shaded riverine aquatic cover, intertidal wetlands, or secondary rearing channels that are available to the same target species under low-flow conditions.

F. Credit Systems

One of the more challenging parts of developing a conservation bank or ILF program is creating a biologically relevant crediting system. Credits are essentially the currency of the bank or ILF program and represent a unit of measure for the biological resources that are restored, established, enhanced, or preserved at a bank or in-lieu project site (Bonnie and Wilcove *in* Carrol *et al.* 2008). The credits quantify the conservation value of a bank that is available to the targeted listed species. Credits may be based upon a number of biologically relevant criteria such as preserving or creating specific habitat types, or by quantifying biologically relevant management activities such as changes in river flow or quantified improvements in migratory success or survival. If the bank is a preservation bank, the credits should be based on the biological values of the bank at the time the bank agreement is established. Because populations may vary in size due to natural dynamics, credits should not be based on the number of individuals. In general, the credit system for a conservation bank should be expressed and measured in the same manner as the impacts of anticipated projects so that the credit-debit currency will be consistent. For example, if a development project will permanently remove some amount of habitat acreage or linear feet of riparian habitat, then the bank's credits should be expressed in terms of acreage or linear feet of similar riparian habitat.

Credits can be quantified through various methods. The simplest approach is to use an acre-based or linear system where one credit equals one acre of functional habitat or one linear foot of stream habitat. This is the most common approach used for banks across the country (Fox and Nino-Murcia 2005). However, several assessment tools are available to evaluate a project's unavoidable impacts, and calculate appropriate conservation credits to mitigate for them (e.g., King and Price 2006). The NMFS Northwest Region (NWR) has developed a model for quantifying credits at the Blue Heron Conservation Bank in Puget Sound, Washington, based on the Habitat Equivalency Analysis (HEA). The model accommodates initial habitat values, and calculates values for expected future habitat values. The HEA provides a way to evaluate a site's value to a species in a manner that correlates ecological function of all habitats present before and after restoration, and quantifies the improved ecological function achieved through restoration.

Another assessment tool was developed for the Northern Virginia Stream Bank, the Stream Impact Assessment Manual, available at: <http://www.wetlandstudies.com/?tabid=223>. The manual outlines a system to rapidly assess the condition (or “value”) of a stream in a repeatable manner. Calculation of conservation credits for an endangered floodplain minnow in Oregon integrated five factors, including habitat area, suitability, utility, integrity, and impact duration (Scheerer and O’Neill, 2010). While equating impacts with appropriate compensation can be challenging, in practice NMFS staff (particularly section 7 practitioners) conduct such assessments routinely when they are quantifying the effects of Federal actions and the amount and extent of take in biological opinions, and also when developing measures and conditions that action agencies can apply to minimize the adverse effects.

Consideration must be given not only to habitat loss, but also to temporal impacts, or the time it takes for new habitat to establish and replace the functions that were affected. Ratios of impact to mitigation credit have generally been too low to offset the impact (King and Price 2006). In particular a typical 1:1 ratio has been shown to be inadequate to replace lost aquatic resource functions (King and Price 2006). 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. North Carolina and several other States have similar guidance. Ratios greater than 1:1 can account for temporal losses, the method of mitigation (restoration, preservation, or enhancement), the likelihood of success, differences between the functions lost at the impact site and gained at the bank site, conservation elements proposed as part of the project, and the geographic distance between the impact site and the bank site to achieve conservation goals.

In certain situations, such as when agencies or applicants are able to meet fully meet compensatory mitigation requirements onsite, they may propose to purchase credits at a 1:1 ratio to contribute to the conservation of the species or habitat type. These purchases should be encouraged, as they may represent an action agency’s approach to meeting ESA section 7(a)(1) obligations.

Credits are released according to an agreed upon schedule, and tied to the achievement of financial and ecological performance criteria. Initial release of credits is typically limited to a small percentage of the total. The initial release generates funds that the bank sponsor may use to implement restoration or enhancement projects on the site. Release of additional credits is reviewed and approved by NMFS (and other partner agencies that the bank sponsor has an agreement with for the same bank). In some instances, a bank may contain habitat and credit types that are suitable for multiple listed species. Once a credit is sold, it cannot be resold again. For instance, once a project buys a credit for one species, that credit cannot be sold again for another species.

IX. NMFS SWR Administrative Procedures for Establishing Roles and Responsibilities of NMFS Staff, and the Selection, Review and Approval of Conservation Bank and ILF Proposals

A. Roles and Responsibilities

The 2011 8-agency MOU (CNRA *et al.* 2011) establishes a coordinated approach to conservation and mitigation banking in California. The MOU establishes a collaborative process for the development of standardized banking and ILF program documents and policies. The interagency approach will add consistency to the approval of conservation banks and ILF programs and will simplify and clarify the process for agency staff and bank and ILF program sponsors. The approach also will simplify the oversight of operating banks and ILF programs to assure compliance with all of the parties' responsibilities.

The MOU establishes a state-wide interagency Banking Agency Management Team (BAMT) and Product Development Team (PDT), and recommends that agencies provide representation to Corps District's Interagency Review Teams (IRT). The BAMT will review and approve banking and ILF program templates, policy documents, and processes proposed by the PDT. The PDT will develop banking and ILF program templates, policy documents, and processes for reviewing, approving and overseeing the operation of banks and ILF programs. IRTs have the responsibility to review proposed mitigation and conservation banks and ILF programs. The IRTs' areas of responsibility are based on the regulatory boundaries of the Corps districts in California (Los Angeles, San Francisco, and Sacramento). Typically, IRTs are composed of a representative from a Corps district and representative from each agency, as appropriate. Some agencies may not participate on every IRT.

Priority should be given to processing bank proposals and agreements through the process and protocols that are described or proposed in the 2011 8-agency MOU for mitigation and conservation banking and in-lieu fee programs in California (CNRA *et al.* 2011). The PDT has developed a series of templates for these exhibits that are available to species conservation and wetland mitigation banks. These templates can be found at the following weblink: <http://www.spn.usace.army.mil/regulatory/bankinfo.htm>. Conservation bankers should use the approved PDT templates for conservation banking documents.

NMFS SWR offices should coordinate with the following IRTs:

- Central Valley Office - Sacramento District IRT
- North Central Coast and Northern California Offices - San Francisco District IRT
- Southern California Office - Los Angeles District IRT

In cases where the Corps does not have an interest in reviewing a bank proposal through the IRT, a separate review team, the conservation banking review team (CBRT) may be established that includes interested Federal and State agencies. NMFS should recommend to bank sponsors that they direct all correspondence and coordinate all meetings and reviews with the members of this CBRT. The CBRT should identify a lead State or Federal agency. The CBRT should

recommend the bank sponsor to use of all applicable PDT banking templates and to generally follow IRT schedules for review and approval.

In cases where NMFS' species benefit significantly from the establishment of a bank but other agencies choose not to participate, NMFS may approve and oversee the bank without participation from other agencies. For example, the East Austin Creek Conservation Bank was approved solely by NMFS in 2010, primarily because it was designed to permanently preserve and restore over 400 acres and several stream miles of prime habitat for the critically endangered Central California Coast coho salmon and threatened steelhead. The Bank offers perennial flows of cold water and restoration now provides valuable habitat for salmon and steelhead, particularly during the critical summer rearing period. The location of the bank is designated in the draft Central California Coast coho salmon federal recovery plan as a "core recovery area"; areas with the highest priority for habitat restoration and preservation.

B. NMFS Administrative Process (internal)

The following steps outline NMFS' administrative process for reviewing and approving ILF programs and conservation banking documents (banking documents is a general term used here to describe draft and final CBEIs, and associated exhibits).

- 1) **Administrative Tracking:** Bank Sponsors should submit draft ILF and banking documents to the appropriate NMFS Office Supervisor. Documents from the Bank or ILF Sponsor should be accompanied by a cover letter requesting NMFS' review. Banking documents should be assigned to a lead staff and logged into PCTS as Technical Assistance (administrative code number 151422) and assigned to the appropriate staff.
- 2) **Staff Review:** Lead staff will review and provide comments on the prospectus by responding to the biological and technical feasibility of the proposed bank. Lead staff will also review draft and final ILF and banking documents and other biological inventories or physical or biological models that may have been developed to support the bank design.
- 3) **Management Review:** The Office Supervisor is the agency lead on all stages of bank development. Office Supervisors may designate a lead staff but will be informed of the status of bank development throughout the process. The Office Supervisor will review and sign all written correspondence. Once the ILF or banking documents are near completion the assigned lead staff shall prepare a briefing for the Office Supervisor and request that it be cleared for legal review. Staff will prepare a transmittal memo from the Office Supervisor to NOAA Office of General Counsel, Southwest Regional Counsel (GCSW) requesting legal review and clearance.
- 4) **Cross Office Review:** Lead staff will work with NMFS SWR conservation banking points of contact in other offices (see Attachment 3) to the extent practicable to conduct cross office reviews of bank agreements and associated documents, and will conduct appropriate coordination with other NMFS SWR divisions and NOAA Restoration

Center staff. The purpose of this coordination is to share technical and policy expertise and to maintain consistency throughout the region.

- 5) **Legal Review:** Staff will provide GCSW with advance notice via email when the CBEI is in early development, and identify potential issues and discuss these issues with GCSW in advance. Once the ILF program documents or the CBEI and associated exhibits have been informally approved by all the agency technical staff that are reviewing a bank, the lead staff shall transmit the ILF program documents or the CBEI and exhibits to GCSW via a transmittal memo requesting a formal GCSW review. Legal review will focus on the CBEI but a copy of the exhibits should also be provided. Once legal review is complete, GCSW will clear the CBEI for signature by the Regional Administrator.
- 6) **Bank and ILF Program Approval:** Bank and ILF program approval requires the signature of the NMFS Southwest Regional Administrator. Once the CBEI or ILF program documents have been cleared by GCSW, the assigned staff prepares a transmittal memo from the Area Office Supervisor, through the Assistant Regional Administrator, to the Regional Administrator recommending approval and signature of the CBEI or ILF program documents. The transmittal memo should summarize the location, function and purpose of the bank or the intended location, function, and purpose of the ILF program; confirm that the CBEI has been cleared by GCSW; and describe the level of interagency review and cooperation that has contributed to the current agreement. A memo template is available at: <http://lajolla.noaa.gov/swr/conservationbanking.htm>
- 7) **NEPA and ESA Compliance for Bank Approval:** NMFS approvals of individual banks or ILF Programs represent agreements between NMFS and the bank or ILF sponsor, respectively, regarding establishment and use of the mitigation credits, but underlying actions that may affect the environment generally require separate environmental review and permitting. Therefore, approving such an agreement in itself is generally not a major Federal action subject to NEPA, and NEPA review is not required. In the same sense, signing bank agreements does not authorize, fund or carry out any action that requires consultation under the ESA. However, as described below, an underlying Federal agency action related to a bank agreement may require NEPA review and consultation under the ESA.
- 8) **NEPA and ESA Compliance for Bank Construction:** The environmental review and permitting for the restoration or enhancement activities at individual bank sites may be separate from the review and approval of bank agreements. In most cases, the ESA consultation is triggered by the Federal action agency that issues permits for the construction of a bank site (*e.g.*, CWA section 404 permits from the Corps). When the bank sponsor and the IRT, or other approving agencies, agree on the final design, the bank sponsor begins to pursue permits for the construction at the site. The Corps may request initiation of ESA section 7 consultation for the construction of the proposed bank site when they receive CWA section 404 permit application materials from the bank sponsor. NMFS should conduct sufficiency reviews of consultation material and request additional information, or initiate consultation as appropriate.

- 9) **Use of the Bank:** As appropriate and consistent with the implementation procedures used under the ESA, MSA and/or FWCA, NMFS staff commonly inform project proponents and other Federal partners of their avoidance, minimization, conservation and compensatory mitigation opportunities to offset the effects of certain proposed actions. NMFS staff should inform action agencies and project applicants of NMFS-approved conservation banks or ILF programs that may provide ecosystem mitigation or conservation services within their action area. This does not mean that agencies are required to use NMFS-approved conservation banks, only that NMFS staff are encouraged to discuss such opportunities in the context of providing technical assistance or completing consultations.
- 10) **Performance Tracking:** NMFS SWR should track the progress of all established banks to ensure they are meeting reporting requirements, performance goals and objectives, and that credit releases and availability are consistent with established schedules. Credit releases that must be approved by NMFS should be approved in writing, with correspondence placed in the appropriate administrative file.

NMFS is considering coordinating with the Corps to utilize their existing Regional Internet Bank Information Tracking System (RIBITS). RIBITS provides online tracking of mitigation and conservation bank activity (and will accommodate ILF program activity in the future), including contacts, service areas, credit ledgers, and bank documents. The system is transparent and accessible to staff, bankers and other stakeholders. If this coordination is not feasible, the SWR will consider creating internal credit tracking systems.

In addition, periodic independent evaluations of banks and ILF program established with NMFS should be conducted. If necessary, such evaluations should include recommendations to NMFS for improving these programs to meet our mitigation and conservation goals.

C. Bank Selection, Review and Approval Criteria

The selection, review and approval of banks should be considered in the context of the following criteria. The criteria are a list of points that are important to consider before moving forward in a bank development and approval process with entities proposing conservation bank or ILF programs. The criteria are meant to screen the biological or ecological value of the action, ensure consistency with regional conservation strategies, maintain coordination with other agencies, and to evaluate the ability of the bank or fee program to provide ecological offsets for projects that are reasonably certain to occur within the service area.

- 1) Is the Conservation Bank or ILF Program located in a high priority conservation area for NMFS target species as described in species recovery plans or other similar species conservation strategies?
- 2) Does the Conservation Bank or ILF Program provide a clear conservation benefit to the target species?

- 3) Are the preservation and/or restoration plans for the proposed Conservation Bank or ILF Program consistent with the strategies, goals or objectives within relevant species recovery plans or other similar species conservation strategies?
- 4) Are the proposed preservation and restoration actions technically and biologically feasible?
- 5) Does the ILF program or CBEI's 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 ILF program or the CBEI include sufficient dedication of resources to ensure that the physical and biological goals and objectives of the bank are met in perpetuity?
- 7) Have other Federal and/or State agencies been given adequate opportunity to participate as signatories to the ILF program or conservation bank and have they been advised of the bank's development as may be described in regional or statewide interagency banking coordination agreements or understandings?
- 8) Does the proposed Conservation Bank or ILF Program provide credits preservation and/or restoration or enhancement credits that are commensurate with the anticipated unavoidable action that may affect the target species in the foreseeable future?
- 9) Does the proposed Conservation Bank or ILF Program use current agency templates?

X. Conservation Banking Resources and Training Opportunities

The NMFS SWR has established an intranet website containing a substantial amount of supporting information to ensure that banking resources, including policies, guidance, rules, and agency weblinks are readily available to NMFS staff participating in conservation bank and ILF program development. NMFS staff working on conservation banking should review this material and become familiar with these resources and training opportunities.

The NMFS SWR intranet site for conservation banking is located at:
<http://lajolla.noaa.gov/swr/conservationbanking.htm>

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