Integrated Process Review:
Section 7(a)(1) Consultation between the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service, for Channel Improvement Program Mississippi River and Tributaries Project

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Executive Summary

The purposes of this integrated process review of the US Army Corps of Engineers (USACE), US Fish and Wildlife Service (Service) consultation under section 7(a)(1) of the Endangered Species Act (ESA), are to provide background on the intent and history of section 7 (a)(1) of the ESA; identify and evaluate challenges experienced during the consultation; identify benefits of section 7(a)(1) that may accrue to action agencies, Service programs, and the species; and recommend a strategy for wider implementation of this important statute.

The conservation (recovery) needs of listed species are the primary focus of section 7(a)(1) programs and consultations. Section 7(a)(1) of the ESA requires all Federal agencies to utilize their authorities, in consultation with the Secretary (Service), to develop and carry out programs to conserve (recover) all species listed under the ESA. The purpose of section 7(a)(1) conservation programs are to improve endangered and threatened species baseline within the scope of Federal action agency authorities, thereby contributing to the recovery of the listed species.

The primary focus of a section 7(a)(2) consultation is ensuring avoidance of jeopardy to listed species and/or destruction or adverse modification of their designated critical habitats during Federal actions. The secondary focus is to minimize "take" and permit unavoidable take directly resulting from agency actions. Consultations under section 7(a)(2) are concerned strictly with the need to meet statutory requirements for Federal actions that may adversely affect listed species (avoidance of jeopardy/critical habitat modification), i.e., they are to facilitate Federal actions within defined action areas.

The potential of section 7(a)(1) of the ESA for conserving listed species and their habitats, as well as the underutilization of the statute has been clearly documented. The Service/USACE extended consultation relative to the Lower Mississippi River (LMR) Channel Improvement Program (CIP) demonstrates that section 7(a)(1) conservation programs can be efficiently developed and employed through partnerships, effective communication, unified action, and focused success.

Findings

Section 7(a)(1) Program Design

The USACE conducted an extended consultation with the Service that included addressing data gaps, developing databases, and defining Channel Improvement Program effects to listed species, and which culminated in a strategy and pathway to mitigate for past, current, and future Program effects. During the subject consultation both agencies recognized that an appropriately designed section 7(a)(1) program will promote recovery and facilitate interagency section 7(a)(2) interactions. It was further revealed that the design of section 7(a)(1) conservation programs are inherently flexible, due to the discretionary nature of their implementation.

Section 7(a)(1) Program Execution

A sustained process for interagency contact, coordination, collaborative research and analysis, and encouragement was required, not only to negotiate and design the section 7(a)(1) conservation program, but also for the programs successful execution. Section 7(a)(1) consultation, therefore, is a transparent continuous process of effective communication and review and feedback at all levels of management, thus providing a strong adaptive management component of conservation program execution.

Section 7(a)(1) Program Integration

One of the primary challenges to conservation program development and execution is maintaining institutional memory on the purpose of, and a process for section 7(a)(1) consultation. This review recommends that the Service and USACE can effectively enhance institutional memory within both agencies by embracing and promoting section 7(a)(1) within their conservation business models through developing and implementing inter and intra agency training, policies and guidelines.

Because of the success and cost-effectiveness of the LMR CIP conservation program, USACE has expressed interest in extending a section 7(a)(1) business model to other USACE Divisions and species, and in using this programmatic approach to obtain management plans for the Interior least tern in other Divisions within the range of the species. The Service should fully embrace this opportunity to work with the USACE to develop a section 7(a)(1) interagency business model. This opportunity can be used as an adaptive management process to test and refine conservation program design and execution processes, as well as the training programs and guidelines required for program integration.

Conclusion

Section 7(a)(1), compliments, streamlines, and facilitates 7(a)(2) consultation as it addresses cumulative and direct impacts and data gaps, mitigates the adversarial process between agencies, and fulfills legal obligations that minimizes agencies vulnerabilities to litigation. With 7(a)(1), actions can be cost-effectively compensated or mitigated, and conservation can be achieved. The reduction of interagency conflict that results from conservation planning, allows refocusing efforts towards the species as intended by the ESA.

I. INTRODUCTION

In 2013, U.S. Army Corps of Engineers (USACE) Mississippi Valley Division (MVD) released the *Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River* (Channel Improvement Program Conservation Plan), which outlines a process to conserve the three endangered species within the footprint of the Channel Improvement Program (CIP) in the Lower Mississippi River (LMR) (USACE 2013). This document was the product of a 13 year consultation under section 7(a)(1) of the Endangered Species Act (ESA) with the Service's Southeast Region, Mississippi Field Office (MFO). The consultation process required close interagency communication and collaboration during all phases of development and implementation, including basic research and data gathering on the species and their habitats, channel engineering design and testing, modeling, development of Best Management Practices protective of the species and their habitats, and monitoring and interpreting results. Our experiences with this multi-year consultation revealed that numerous benefits for the species, the ecosystem, and the agencies can be derived through section 7(a)(1) consultations; however, we also encountered numerous challenges to the process throughout the consultation, and at all levels in both agencies. These included:

1) a lack of knowledge or understanding of the purpose, benefits, potential value, and other ramifications of section 7(a)(1) planning;
2) a lack of knowledge on the status and trends of the listed species in the action footprint;
3) a lack of sufficient habitat and ecological data for informed decisions;
4) a historic culture of "winning or losing/them vs. us"; and,
5) an inability to maintain "institutional memory" throughout the process due to personnel shifts including retirement and death;

This process review considers the history and purpose of section 7 conservation; identifies and evaluates challenges experienced during its development and implementation; and identifies benefits of section 7(a)(1) program development and implementation to action agencies, Service programs, and the species. This analysis is then used to consider and recommend a strategy for Federal agencies to achieve cost-effective conservation under this important statute.

II. BACKGROUND

History and Purpose of Section 7 Conservation

Section 2C(1) of the ESA declares it is "…the policy of Congress that all Federal departments and agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." The mechanism for implementing this policy is identified under Section 7:

> *Sec. 7 (a) FEDERAL AGENCY ACTIONS AND CONSULTATIONS. - (1) ...All...Federal agencies **shall**, in consultation with and with the assistance of the Secretary, **utilize** their authorities in furtherance of the purposes of this Act **by carrying out programs for the conservation** of endangered species and threatened species...*

One of the greatest criticisms of the ESA has been the lack of recovery of listed species (Houck 1993, U.S. Congress 2005, Scott *et al*. 2006). While critics contend it is a failure because only 1 percent of the species under its protection have been recovered and delisted, proponents note the role of the ESA in preventing extinctions and improving the status of many listed species (CBD 2012).

A number of legal scholars have recognized the potential, as well as the under-utilization of the conservation provisions of section 7 of the ESA for creating effective species recovery strategies and programs (Eider-Orley 1978, Ruhl 1995, Wood, 2004, Gersen 2009). Section 7(a)(1) of the ESA provides all Federal agencies with both the authority and an obligation to assist in the recovery of listed species within the boundaries of their authorities (50 CFR 402.01). However, over the history of the ESA there have been no regulations and little guidance to implement section 7(a)(1). For example, current Service regulations simply state, "[t]he Service notes that it is beyond the scope of these regulations to address how other Federal agencies should implement and exercise their authority to carry out conservation programs for listed species under section 7(a)(1). However, the Service stands ready to assist any Federal agency in developing and carrying out conservation programs" (51 FR 19926).

Judicial guidance for the conservation mandates of the ESA has been ambiguous. Several courts have recognized the mandatory and affirmative conservation obligations of Federal agencies under section 7(a)(1). In TVA *v*. Hill (1978), the Supreme Court recognized that section 7(a)(1) and (a)(2) created independent obligations: one to conserve, and one to avoid jeopardy/adverse modification of critical habitats. While noting that it was Congress's intent for each and every Federal agency "…to take whatever actions are necessary to ensure the survival of each endangered and threatened species," the court did not specify what an agency's conservation program should look like. In Defenders of Wildlife *v*. Andrus (1978), the United States District Court, District of Columbia, found that the Service failed to consider the mandatory nature of section 7(a)(1) to "…utilize (its) programs in furtherance of the (conservation) purposes of (the ESA)." In 1994 (Florida Key Deer *v*. Stickney), the U.S. District Court, Southern Division, clearly noted that "Section 7(a)(1) of the ESA imposes an affirmative obligation on all federal agencies…," and that failure of any Federal agency to consider or undertake conservation actions consistent with the "…mandatory obligations under Section 7(a)(1)…" is, therefore, "…in violation of that provision of the ESA." In 1998 (Sierra Club *v*. Glickman), the U.S. Court of Appeals for the 5th Circuit found that "...section 7(a)(1) contains a clear statutory directive … requiring the federal agencies to consult and develop programs for the conservation of each of the endangered and threatened species listed pursuant to the statute." It further clarified that "...under section 7(a)(1), each federal agency must consult with Service and develop programs for the conservation of each endangered species that it can affect within its authorities."

Other judicial findings, however, have concluded that duties under section 7 are only triggered by discretionary actions; they have interpreted the lack of explicit instruction for 7(a)(1) as evidence of inadequate authority to force agency action, and deferred to agency's individual interpretation of the statute (e.g., Platte River Whooping Crane Critical Habitat Maint. Trust *v*. Fed. Energy Regulatory Comm'n, D.C. Cir. 1992; Seattle Audubon Soc'y *v*. Lyons, W.D. Wash. 1994; Nw. Envtl. Advocates *v*. EPA, D. Or. 2003; Nat'l Ass'n of Homebuilders *v*. Defenders of Wildlife, S. Ct. 2007).

Therefore, relying on judicial rulings to determine and enforce the conservation potential of section 7(a)(1) has had sporadic and inconsistent results. However, legal challenges and judicial opinions have focused attention on the conservation requirements of the ESA, and over the past two decades, attempts to increase use of section 7 conservation planning have been explored. For example, in 1994, fourteen Federal agencies entered into a Memorandum of Understanding to confirm the agencies common goal under section 7(a)(1) of the ESA to conserve endangered and threatened species (USFWS *et al*. 1994), and several Federal programs have since been developed. Some of these programs were developed to improve coordination and facilitate potential future events (e.g., Walko 2001, Memorandum of Agreement to ensure ESA compliance, and increase cooperation and understanding among agencies involved in oil spill planning and response); while others have been developed to facilitate recovery of species, and/or influence future consultations under section 7(a)(2) (e.g., US Forest Service 2011, National Forest System Land Management Planning Rule; US Marine Corps 2012, Red-cockaded woodpecker recovery and sustainment program; USACE 2012, multi-species Conservation Plan for the Lower Mississippi River). Additionally, numerous Federal agencies have established protocols, and/or implemented conservation actions for listed species; however, many of these were initiated and developed as a product of section 7(a)(2) consultations, and were not considered in a programmatic sense as required by section 7(a)(1).

The multi-year section 7(a)(1) consultation between USACE and the Mississippi Field Office revealed that numerous benefits for the species, the ecosystem, as well as the agencies may be derived through such consultations; however, we also encountered numerous challenges at all levels in both agencies to fully implementing section 7(a)(1). Below, we outline some of these challenges and provide general recommendations to address them; next, we detail benefits that may accrue from section 7(a)(1) program planning; and finally we present a general strategy to facilitate the conservation consultation process through its incorporation into Service and action agency business models.

III. CHALLENGES TO IMPLEMENTATION OF SECTION 7(a)(1) PROGRAMS

Challenge: There is a lack of understanding, involvement, or commitment by Federal action agencies in section 7(a)(1) conservation planning.

Recommendation: Develop or strengthen Service and action agency training on intent and purpose of section 7(a)(1) conservation. Develop general interagency guidelines for initiating and conducting conservation consultations.

Discussion: During the first decade of the CIP consultation, we encountered little knowledge of, or experience with section 7(a)(1) conservation within both the Service and USACE. At levels where there was knowledge of the statute, section 7 conservation programs and actions were considered totally discretionary, i.e., agencies were not "required" to develop conservation programs, implement conservation actions, or consult with the Service. In negotiations with both Service and USACE field level (Service Field Offices; USACE Districts) personnel, we encountered an attitude that conservation was secondary to agency missions, and action agency conservation efforts required "force," as in a non-discretionary product of section 7(a)(2)

consultation. In discussions and negotiations at higher command levels and with legal staff (Service Regional Office; USACE Division), similar interpretations were supported by selective judicial rulings as well as the lack of Service and National Oceanic and Atmospheric Administration (NOAA) guidance for implementing the section 7 conservation mandate.

In 2001, during our discussions with USACE MVD command staff, we noted the review of the legislation history of the ESA under TVA *v*. Hill (U.S., 1978), supported by Sierra Club *v*. Glickman (5th Circuit, 1985) finding that Congress intended federal agencies to *affirmatively* develop programs and implement actions that would conserve listed species. We utilized these and other judicial findings to argue that while Federal action agencies are afforded significant discretion in choosing the type, timing, location, and level of conservation measures in meeting their duties and obligations under section 7(a)(1), *they must do something* that results in meaningful conservation planning and success. This has most recently been confirmed by Florida Key Deer *v*. Brown (2005), finding that "…while agencies might have discretion in selecting a particular program to conserve ... they must in fact carry out a program to conserve, and not an 'insignificant' measure that does not, or is not reasonably likely to, conserve endangered or threatened species."' Therefore, while implementation of specific conservation actions may be discretionary, *the duty imposed by Section 7 of the* ESA *on all Federal agencies to develop programs and implement significant actions for the conservation of listed species is not discretionary*.

Challenge: There has been an unbalanced reliance on section 7a2 consultations for conservation purposes.

Recommendation: Develop recovery and consultation guidelines that encourage, rather than discourage collaborative conservation between the Service and action agencies. This might include more emphasis during Service training on the important link between section 7(a)(1) and 7(a)(2) consultations, and the role of interagency collaboration. It should also include outreach to action agencies emphasizing the benefits of section 7(a)(1) conservation programs to the action agency, including the potential to facilitate future section 7(a)(2) consultations (see IV, below).

Discussion: While section 7(a)(1) contains the conservation mandate for all Federal agencies, section 7(a)(2) consultation appears to be the most frequently used avenue to achieve action agency involvement in the conservation of listed species. Section 7(a)(2) consultation, alone however, can be a recipe for progressive decline of listed species. Section 7(a)(2) consultation is a process to assure that a Federal action does not bring a listed species to or below a jeopardy threshold or adversely modify its critical habitat, and to "permit" Federal agencies for various forms of unavoidable take of listed species. Therefore, without positive conservation actions, successive section 7(a)(2) consultations may erode a species baseline, progressively limit action agency options, and contribute to a future jeopardy call (e.g., Wood 2004). Service consultation biologists generally recognize this, and, in the absence of action agency conservation programs, they may seek to aggressively conduct 7(a)(2) consultations for conservation purposes.

During formal consultations, various components of the 7(a)(2) consultation process (i.e., Biological Assessments, Reasonable and Prudent Measures (RPM), Reasonable and Prudent

Alternatives (RPA), Terms and Conditions (T&C)) may be used to obtain information on presence, population dynamics, distribution, life history, contaminant sensitivity, and/or other ecological factors pertinent to species conservation, as well to provide for monitoring of populations and their habitats within Action Area footprints for "take". These components have also proved useful to "jumpstart" or "leverage" action agency conservation actions and even programs (e.g., US Forest Service 2011, US Marine Corps 2012). However, the mandatory nature of the products of formal consultation (RPMs, RPAs, and T&Cs), provide the Service with strong oversight and control of the consultation process.

Section 7(a)(2) consultations are often initiated after projects have been planned, designed, and funded, and therefore may encounter action agency resistance to project modifications and/or unplanned costs of modifications and monitoring. As a result, rather than encouraging collaboration, 7(a)(2) consultations can develop into adversarial negotiations, with the action agency trying to get away with as little as possible in project modifications, and the Service trying to get as much as possible for the species. Adversarial section 7(a)(2) consultations do not foster collaborative relations between agencies, nor do they encourage implementation of discretionary Conservation Recommendations.

During the early years of the CIP 7(a)(1) consultation we encountered a general attitude among USACE personnel that recovery is the responsibility of the Service. We also encountered attitudes that developing and implementing conservation programs would complicate future projects or divert funds to conservation actions having little to do with USACE primary missions. Other reasons for resistance to voluntary action agency conservation and research efforts included concerns that increasing the numbers or extending the distribution of listed species would only compound the frequency of 7(a)(2) consultations, and that new information on species and their habitats developed through research programs might result in serious future impacts to the agencies activities. Such concerns and attitudes impede collaborative conservation efforts between action agencies and the Service.

Challenge: There is a lack of early involvement of Federal action agencies in conservation planning.

Recommendation: Early involvement of Federal agencies with potential conservation responsibilities could help improve the recovery planning process, as well as its implementation. It would also constitute early initiation of consultation under section 7(a)(1), facilitating the development of conservation programs by emphasizing Federal agency responsibilities (and resource allocation authorities) under the statute, evaluating program effects on the species, identifying appropriate conservation goals and timelines, and initiating a logical institutional relationship between conservation and action agency activities as well as between the agencies. The Service's Strategic Habitat Conservation (SHC) approach and strategy also offers opportunities to retroactively and purposefully engage Federal action agencies in developing and implementing conservation strategies for species where recovery planning has been completed.

Discussion: Section 4(f)(1) of the ESA requires the Secretaries of Interior and Commerce to develop and implement recovery plans for listed species. Section 4(f)(2) authorizes the involvement of other Federal agencies in developing and implementing recovery plans.

Recovery plans outline objective and measurable criteria for the recovery of each species, describe management actions necessary to conserve the species, and identify the appropriate parties to conduct specific recovery actions.

Although section 4(f) does not directly obligate Federal agencies, other than the Department of Interior and Department of Commerce, to implement recovery plans, each Federal agency is required to consider all information presented prior to its implementation (section 4(f)(5)). This could provide an early opportunity for initiating section 7(a)(1) consultation, and more active involvement by other Federal agencies in conservation planning. Unfortunately, this is neither policy nor practice, and the recovery planning process as practiced, is not generally conducive to initiating cooperative conservation dialogue or actions between the responsible agencies. Other Federal agencies are generally not directly involved in the recovery plan development process, and they may be unaware of their section 4(f)(5) responsibilities or their potential to influence recovery planning. Ignored or misunderstood during the review and comment process, they may become resentful of what they perceive as "Service imposed obligations" (i.e., agencies may interpret Recovery Plan Implementation Schedules as such). Additionally, action agency authority, as well as available information and technology, may fall far short of that needed to accomplish designated recovery tasks, presenting the action agencies with impossible tasks and/or a heavy burden of research and development. Funding is also a primary complaint about implementation of recovery tasks requiring extensive research and development, as agencies cannot arbitrarily reallocate their resources.

In 2006, Service leadership endorsed SHC as the conservation strategy and approach to establish self-sustaining populations of fish and wildlife, in the context of landscape and system sustainability (http://www.fws.gov/landscape-conservation/). During our consultation with USACE, we worked together to frame the CIP engineering role in the SHC context (see section IV, below), and successfully utilized this approach to define a common vision for the long-term conservation of the three endangered species in the LMR, i.e., reimagining channel engineering as a primary conservation tool rather than a primary threat (US Fish and Wildlife Service 2012). This process proved to be an important benchmark for USACE commitment to finalizing a formal CIP section 7(a)(1) conservation program.

Challenge: There is an unbalanced allocation of recovery resources.

Recommendation: While political realities dictate that unbalanced conservation resource allocation is unlikely to change, section 7(a)(1) consultation and SHC can and should be utilized to cost-effectively conserve less charismatic or controversial species at local or regional scales. Landscape Conservation Cooperative (LCC) attention and funding should be strongly directed toward addressing regional science and management information needs associated with major Federal agency program impacts on the ecosystem, particularly as they relate to endangered and threatened species.

Discussion: In the 2011 Expenditures Report to Congress, 90% of all expenditures to conserve listed species were directed to only 12% of the species (U.S. Fish and Wildlife 2011). In fact, 60% of the tracked species received <$100,000/species out of a total expenditure of $1.3 billion by all State and Federal Agencies. Federal action agencies also expend disparate levels of conservation effort per species. In 2010, more than 92% of USACE expenditures for threatened

and endangered species conservation ($213 million) were directed to only 19 species (Henderson 2013). This suggests that the availability of conservation resources for endangered and threatened species may be strongly related to regional and national political and economic influences.

Funding was a major obstacle during the CIP consultation, particularly for basic research essential to management, including endangered species population size, demographics, biology, ecology, and habitat use in the Lower Mississippi River. Although substantial funding has been expended over the past decade for conservation of Interior least tern and pallid sturgeon by both the USACE and the Service, virtually all of it has been applied to and utilized in the Missouri and Middle Mississippi Rivers, with less than a fraction of one percent available for LMR research or management (Henderson 2013).

The budget required to maintain the LMR flood control and navigation infrastructure is substantial. Over the course of the consultation, the Mississippi Field Office came to recognize that the critical infrastructure needs for flood control and navigation outweighed the resources, leaving little for research, monitoring, or direct habitat restoration projects. This was also compounded over the course of the consultation by major reallocation of USACE resources and personnel resulting from the attacks of 9-11, two major wars (Afghanistan and Iraq), natural disasters (three major hurricanes, including the 2005 flooding of New Orleans), and the Deep Water Horizon oil spill. However, the collaborative nature of the 7(a)(1) consultation and SHC process provided clear paths for communicating and accommodating unplanned course changes, and strongly supported resource sharing and recruitment of conservation partners. While both the USACE and Service actively provided the bulk of research and development as funding resources allowed, additional support was sought and received from State programs (AR, TN), other Federal agencies (U.S. Geological Survey), non-governmental organizations (Lower Mississippi River Conservation Committee, American Bird Conservancy, and indirectly from Audubon, Walton Foundation, etc.) and even private industry (Louisiana Hydroelectric). Most recently, support was received through the Services LCC program to develop a multi-LCC monitoring plan for the wide-ranging Interior least tern. These collaborative efforts and associated successes are directly related to and result from the section 7(a)(1) conservation process.

Challenge: Conservation resources are declining, and there is a need to increase cost-effectiveness.

Recommendation: Emphasize and increase the use of Federal conservation programs and section 7(a)(1) consultations for cost-effective conservation of species directly impacted by Federal actions (also, see above).

Discussion: The Budget Control Act of 2011, budget cuts resulting from the 2013 sequestration, and similar cuts projected through 2021 send a strong signal to all Federal agencies that resources are declining, and emphasize the need to increase cost-effectiveness of conservation efforts.

Challenge: There is a need for early consideration and development of post-listing management strategies.

Recommendation: The USACE CIP Conservation Program demonstrates the potential of section 7(a)(1) consultation to change agency culture through incorporation of Best Management Practices conducive to achieving conservation success and both agencies' missions, as well as by developing "ownership" of action agency conservation successes. We also recommend utilizing the section 7(a)(1) consultation process to convert current 7(a)(2) biological opinion mandates into voluntary conservation programs and action agency post-listing management commitments for the Interior least tern within the appropriate USACE Divisions and Service Regions as presented in the discussion below.

Discussion: Even where conservation programs achieve recovery goals, maintaining viable populations of listed species generally requires continuing adaptive management commitments. Species requiring continuing management have been termed "conservation reliant species" (Scott et al. 2005, Goble and Scott 2006). The USACE CIP conservation strategy and plan were developed under a vision that recovery COULD be achieved for all three species, and that the management approach and actions identified and incorporated into the program WOULD be institutionalized, regardless of the species status under the ESA (USACE 2013).

Concurrent with the finalization of the CIP Conservation Program, a 5-year review of the status of Interior least tern was also completed (US Fish and Wildlife Service 2013). This review recommended delisting of the tern, largely due to substantial improvements of the species status in the LMR, and the USACE management strategy and commitment in this portion of the range. However, prior to initiating the de-listing process the review identified the need for post-listing conservation strategies and commitments within other USACE divisions and Service regions, where management is now dictated under section 7(a)(2) biological opinions. Consultation under section 7(a)(1) can provide a platform for converting current biological opinion mandates into institutionalized conservation programs and post-listing management commitments for the Interior least tern within the USACE Northwest and Southwest Divisions.

IV. BENEFITS OF SECTION 7(a)(1) PLANNING

Significant benefits of section 7(a)(1) program consultation became apparent as we worked through this planning process. These included obvious conservation benefits to the species, as well as significant potential benefits to the Service and the USACE.

Section 7(a)(1) provides a path to Strategic Habitat Conservation planning.

In 2006, the Service leadership identified and endorsed SHC as a conservation strategy and approach to maintain self-sustaining populations of fish and wildlife. SHC is to be implemented in the context of landscape and system sustainability. The SHC approach is intended to align expertise, capability and operations across programs to achieve biological outcomes, and rely on an adaptive management framework to inform decisions about where and how to deliver conservation efficiently. A primary component of SHC is developing a framework of partnerships for collaboratively creating and carrying out conservation strategies.

A similar strategy, approach, and framework naturally evolved during the USACE CIP Conservation Program consultation, including the use of surrogates to measure success. Within weeks of receiving the Service directive to implement SHC, we were able to provide a draft SHC Plan for the Lower Mississippi River to the Southeast Regional Office. This plan was eventually vetted and endorsed by USACE MVD, and finalized (US Fish and Wildlife Service 2012), and was used to guide development of the USACE CIP Conservation Plan (U.S. Army Corps of Engineers 2013). Therefore, section 7(a)(1) program planning can provide a powerful nexus for initiating meaningful partnerships and implementing the Services SHC strategy.

Section 7(a)(1) can provide a path for compliance and success under other Federal laws and/or agency regulations relating to ecosystem protection and management.

There are multiple Federal laws, regulations, and policies that now require Federal agency consideration of trust resources, which include sensitive species, habitats, and ecosystems (e.g. but not limited to; National Environmental Policy Act, Civil Works Ecosystem Restoration Policy (USACE ER 1165-2-501), Executive Order 13186 under the Migratory Bird Treaty Act, 2012 Reinvigorated USACE Environmental Operating Principles, USACE ER 200-2-2 for Implementing NEPA, the Fish and Wildlife Coordination Act). Guidance and goals are clearly defined for some of these regulations and policies; however, there is little guidance for implementing, or equally important, measuring success of others. All of these mandates are compatible with the purposes of section 7(a)(1) of the ESA. During the extended CIP consultation, it became apparent that section 7(a)(1) program planning provided an avenue for demonstrating USACE compliance with, and showing success under the Civil Works Ecosystem Restoration Policy, Executive Order 13186 under the Migratory Bird Treaty Act, and USACE Environmental Operating Principles (U.S. Army of Engineers 2013, p. 4, 55).

Section 7(a)(1) conservation programs have the potential for substantial benefits to Federal action agencies.

Foremost among the concerns Federal agencies have with listed species are the potential of conflicts that may arise between accomplishing their primary missions and complying with section 7(a)(2) directives. Such potential conflicts usually involve poorly studied species where Service biologists must use their best professional judgment to assess actions, determine effects, and recommend modifications. In such cases, with no prior planning or commitments by the action agency, the Service must err on the side of the species, often including the imposition of mandatory actions with which the action agency does not agree (and which, while based upon the best available information, may be highly speculative with no guarantee of success). In addition, section 7(a)(2) consultation components provide an avenue for citizen lawsuits to slow or stop Federal actions perceived as arbitrary and capricious, further diverting limited resources away from the species at risk. The 7(a)(1) process may address both of these problems through establishment of research programs strictly oriented to action agency information needs, and by establishing an administrative record that documents decisions, supporting data, compliance with laws and regulations, and adaptive management.

Section 7(a)(1) programs have a visible and significant potential to benefit both the species and the Federal action agency. As noted previously, section 7(a)(1) mandates Federal agencies to develop conservation plans, and provides for strategic and practical commitment of resources in implementation of conservation actions. The discretionary nature of implementation allows

agencies to determine type and extent of project modifications necessary for conservation, timing and frequency of research and monitoring efforts, and even type and location of mitigation for future or past effects of agency actions to the species. Since there are few examples of section 7(a)(1) conservation programs, there is no template to guide either the action agency in its development, or the Service in its review, providing Federal action agencies with the flexibility to identify and select research, management, and monitoring options for negotiation under consultation with the Service. Other potential benefits include:

- A reduction of regulatory surprises and interagency conflicts by fostering open communication and transparency, and by consideration of the species needs and potential conflicts to agency missions early in the planning and budgetary process.

- The ability of the agency to commit to actions it is predisposed to undertake, and their contingency upon the agency's authority and ability to fund and implement them.

- A path to seek and justify appropriation requests for conservation actions through the normal budgetary process; whether or not the funds are appropriated, the process demonstrates the agencies attempted compliance with the affirmative conservation duties imposed by the ESA.

- An avenue for adaptive management and mitigation as new information is developed.

- A proactive coordinated strategy that resolves endangered species issues prior to litigation, conserving resources and providing better legal service to Federal action agencies (e.g., Diner 1993).

- An administrative record demonstrating the development and implementation of the section 7(a)(1) conservation program and showing consideration, planning, and commitments by the action agency in compliance with the ESA, should litigation occur. This administrative record may prevent both the action agency and the Service from appearing arbitrary and capricious in their decisions and actions.

- An increase in the baseline of the species within the action agency footprint, which diminishes or offsets the adverse effects of agency actions and, therefore, will facilitate 7(a)(2) consultations.

- More action agency control of the 7(a)(2) consultation process, which can also be used to elevate realistic and cost-effective operational management commitments through the action agency funding process.

- An increased action agency awareness of the species baseline both within and beyond the action area, allowing the agency to predict early in the planning process if a project is likely to jeopardize the species. This provides the agency the opportunity to consider and develop any reasonable and prudent alternatives prior to initiating the formal consultation process. If there are no alternatives and the action is essential to the agency's congressionally mandated mission, they will have the information necessary to seek an

exemption under section 7(g) of the ESA.

V. STRATEGY TO INTEGRATE SECTION 7(a)(1) PROGRAMS INTO THE FEDERAL CONSERVATION PROCESS.

The potential of section 7(a)(1) for conserving listed species and their habitats, as well as the underutilization of the statute is clearly documented (see Part II, above). Efforts to improve interagency collaboration for endangered species conservation have been previously attempted (USFWS *et al*. 1994; Memorandum of Understanding (MOU) on implementation of the Endangered Species ESA). This MOU identified a strategy for collaborative interagency conservation, brought attention to the potential of section 7(a)(1) conservation (e.g., Ruhl 1995, Gersen 2009), and through the years elements of section 7(a)(1) have filtered into many agency planning efforts. However, it did not establish clear guidelines that could be incorporated into agency cultures at the field and mid- management levels.

Our experiences with the multi-year CIP section 7(a)(1) consultation indicate a need to revive and refine the 1994 MOU strategy in such a way as to incorporate 7(a)(1) program planning into Federal action agency cultures, as well as the Service . This will require significant and focused contact, coordination, and cooperation between the Service and action agencies.

Maintaining negotiations throughout the CIP consultation over more than a decade, and overcoming interagency ennui to fully addressing "secondary" missions and discretionary conservation mandates of the ESA, required significant and sustained interagency contact, coordination, and encouragement. This process has been previously proposed as a mechanism for influencing delegated discretion, and has been termed "interagency lobbying" (DeShazo and Freeman 2005). Interagency lobbying was also enhanced throughout the consultation by expanding the negotiating partnership to include State conservation agencies as well as Non-Governmental Organizations (NGOs). *Intra*-agency lobbying was also necessary to develop and maintain a unified Service vision and support among multiple Field Offices and between the Field and Regional Office.

The USACE CIP consultation demonstrates that section 7(a)(1) conservation mandates can be efficiently achieved through training, effective communication, example, and focused successes. Based upon these experiences we recommend consideration of the following components of program design, execution, and integration:

Section 7(a)(1) Program Design:

Due to the discretionary nature of section 7(a)(1) implementation, the design of conservation programs is inherently flexible and adaptable. Minimal considerations and components should include:

1) Defining action agency authorizations, primary missions, operations, and actions;
2) Defining the species range-wide status baseline and data limitations;
3) Defining the species baseline and data limitations relative to the agencies program, including a description of all past, present and future program actions that may affect the

species or its habitats;
4) Identification and consideration of operations scenarios and potential mitigation and restoration actions;
5) Conducting an effects analysis; culminating in,
6) A customized adaptive management program identifying a process to address data needs, modify or implement actions to conserve the species and its habitats, and improve those baselines within the footprint of the Program. Additionally, the final design should be able to be thoroughly integrated into the action agency mission to an extent that it provides for post-recovery management.

The conservation design and strategy must have the complete support of both the action agency and the Service, and both agencies bring important components into the process. For example, the action agency is the authority on primary mission strategy, design, and execution, including how, where, when, and to what extent actions may be modified to provide conservation opportunities and benefits. The Service is the authority on biology, ecology, and habitats of the species and bringing insight on response of the species to proposed methods and actions. Both the action agency and the Service may benefit from bringing other State and Federal agency perspectives into the design and planning process.

Section 7(a)(1) Program Execution:

As noted above, a sustained process for interagency contact, coordination, and encouragement was required to negotiate and design the USACE conservation program; it also became an integral component of conservation program execution. Section 7(a)(1) consultation, therefore, is a continuous process of effective and transparent communication at all levels of management through review and feedback, thus providing for a strong adaptive management component of conservation program execution.

Section 7 conservation programs do not, and were not intended to take the place of 7(a)(2) consultations. Even with strong Federal conservation programs, adverse effects to listed species may still occur, and the program must be reviewed under section 7(a)(2), even though the species population and habitat baselines may be increased (see US Army Corps of Engineers 2013). The mandatory components of section 7(a)(2) formal consultations (RPMs, T&Cs) may also play an important role in maintaining command support for operational conservation management commitments and actions that may be required beyond cost-effective project modifications (i.e., research and monitoring).

Section 7(a)(1) Program Integration:

One of the primary challenges to conservation program development and execution is creating and maintaining institutional memory on the purpose of, and a process for section 7(a)(1) consultation.

1) The Service should embrace and promote section 7(a)(1) as a primary tool under its ESA, SHC, and LCC business models. This will entail developing and implementing training modules for the Listing, Recovery, and Consultation branches of the Services Ecological Services Division (ES), including an internal ES strategy and guidelines for outreach to, and recruitment of Federal action agencies in conservation partnerships. Service policy should promote effective communication and interagency lobbying strategies that seek and encourage early action agency participation in pre-listing analyses (which may result in early conservation planning and diminishment of threats; e.g., Camp Shelby Burrowing Crayfish Candidate Conservation Agreement, U.S. Fish and Wildlife Service 2003), and throughout the recovery plan development process.

2) The Service should develop Federal action agency guidelines for section 7(a)(1) consultation, encouraging "ownership" of conservation actions and success. Conservation programs may be developed by individual agencies at any time after the listing process, however, the earlier the programs are developed, the greater the benefits to the species and to the action agency.

3) The Service should work with other Federal agencies to develop and initiate section 7(a)(1) basic training programs for action agencies, including defining benefits, and linking section 7(a)(1) to 7(a)(2). Important components would include relating the Federal agencies role and contribution to the species baseline within their regulatory footprint, identification of research and monitoring needs relative to agency actions, and adaptive management strategies under its authorities to minimize adverse impacts and maximize conservation benefits to the species within the scope of the program and action footprint.

Concurrent with the steps above, the Service should work with the USACE to develop and demonstrate a section 7(a)(1) interagency business model. Because of the success and cost-effectiveness of the LMR conservation program, USACE has expressed interest in extending a section 7(a)(1) business model to other USACE Divisions, Districts, and species. The USACE is particularly interested in using this programmatic approach to obtain management plans for the Interior least tern in other Divisions within the range of the species. These plans are needed to support a delisting proposal for the tern, and they can best be negotiated under the section 7(a)(1) process. Such a partnership can be used as an adaptive management process to test and refine conservation program design and execution processes, as well as the training programs and guidelines outlined above. Successes that result from this agency level partnership can be used to recruit other Federal action agency participation into section 7(a)(1) and SHC conservation partnerships.

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