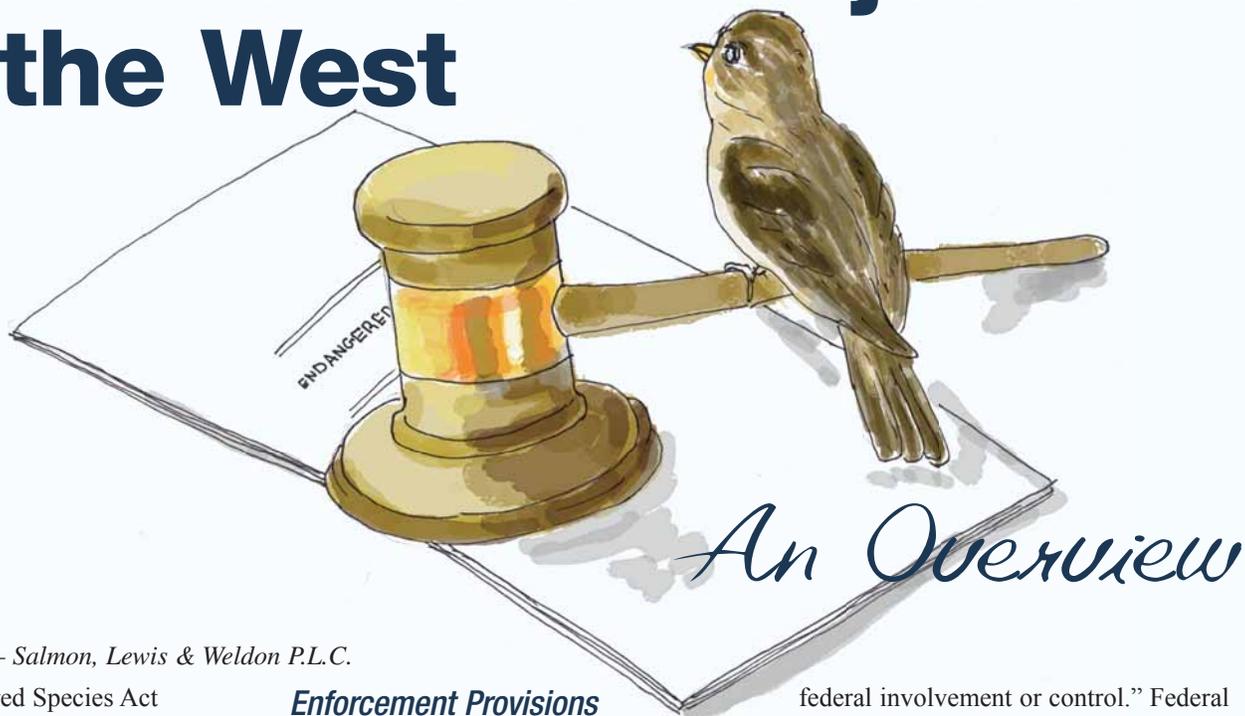


ESA and Water Projects in the West



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The Endangered Species Act of 1973 (ESA) was enacted to: 1) provide a means for the conservation of ecosystems upon which endangered species and threatened species depend; 2) provide a conservation program for those species; and 3) “achieve the purposes of the treaties and conventions” to which the United States is a party for conserving species facing extinction. To accomplish these objectives, the ESA includes both proactive measures and enforcement triggers designed to reverse or minimize the continuing impacts of new and ongoing activities on threatened and endangered species.

The ESA charges the Secretary of the Interior, acting through the U.S. Fish and Wildlife Service (FWS) for terrestrial and freshwater species, and the Secretary of Commerce, acting through the National Marine Fisheries Service (NMFS) for marine species, with the responsibility of taking certain proactive measures, in collaboration with other federal agencies and private individuals. These measures include: 1) listing endangered and threatened species; 2) designating critical habitats for listed species; and 3) promulgating protective regulations and formulating and implementing species recovery plans.

Enforcement Provisions

Once a species is listed, the ESA has several enforcement mechanisms that can be implemented by FWS and NMFS, or by individuals and organizations through the filing of a citizen’s suit. The first, specified in Section 9, is a nearly unequivocal prohibition on the *take* of individual members of listed species. *Take* means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct.” *Harm* includes significant modification or degradation of the species’ habitat “where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding and sheltering.” Violations of Section 9 can result in the imposition of civil and criminal penalties. All water projects, whether operated privately or with the involvement of the federal government, are subject to the “take” prohibitions of Section 9 of the ESA.

Section 7, another ESA enforcement tool, requires federal agencies to consult with FWS or NMFS when any action authorized, funded, or carried out by the agency may affect listed species. The term *action*, as used in the context of Section 7, includes only actions over which an agency has “discretionary

federal involvement or control.” Federal agencies must ensure that their actions are not likely to *jeopardize* the continued existence of any endangered or threatened species or result in the destruction or *adverse modification* of the critical habitat of any such species. While the take prohibition imposed by Section 9 focuses on effects to individual members of a species, the jeopardy and adverse modification standards of Section 7 focus on the effects to species and critical habitat in a broader context, taking into account survival and recovery considerations.

The jeopardy and adverse modification standards apply to federal agencies and the projects they authorize, fund, or carry out. Water projects in the West often entail some action by a federal agency, such as the Bureau of Reclamation, Bureau of Indian Affairs or (for flood control facilities) the U.S. Army Corps of Engineers, thus triggering Section 7 requirements.

A Closer Look at Section 7

A water project may become a *proposed agency action* subject to Section 7’s consultation provisions at various stages in its life cycle. A new project by a federal agency, such as the construction of a dam or water delivery system, may qualify

as a proposed action. A change to an existing project may qualify if it would be authorized, funded, or carried out by a federal agency. Finally, the agency must reinitiate an earlier consultation on an action if agency discretion has been maintained or is authorized by law, and:

- new information uncovers effects of an existing project on listed species or critical habitat that were not previously considered;
- previously authorized take of a species for the project is exceeded;
- a new species is listed or critical habitat is designated in the action area; or
- modification of an action affects species or critical habitat in a manner not previously considered.

In determining whether consultation is needed, an agency may prepare a *biological assessment* to evaluate the environmental effects of its proposed action. If, after examining these effects, the agency determines that its proposed action will have “no effect” on listed species or critical habitat, then formal consultation is not required. Likewise, if the agency determines that its proposed action “may affect, but is not likely to adversely affect” any listed species or critical habitat and FWS or NMFS agrees, formal consultation is not required. However, if the action agency (or FWS or NMFS) concludes that the proposed action will result in adverse effects to listed species or critical habitat, formal consultation on the proposed action must be initiated.

As part of the consultation process, FWS or NMFS must prepare a *biological opinion* explaining how the proposed action affects listed endangered or threatened species. If the opinion concludes that the proposed action is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat, the opinion must also identify a “reasonable and prudent alternative” to the proposed action to avoid these effects. For water projects, such alternatives might include revising the operating criteria for a water facility or the imposition of conservation measures

such as the purchase and management of substitute habitat for an affected species.

Where a private entity stands to benefit from the proposed action, the costs of implementing such alternatives, which

ESA includes both proactive measures and enforcement triggers designed to protect species.

can run into the millions of dollars, are frequently passed on to the private entity. For example, the Lower Colorado River Multi-Species Conservation Program approved by FWS in 2005 contains both federal and nonfederal components (FWS 2004, see also page 26). The conservation measures required under the program, which benefit 26 species, will cost \$626 million (in 2003 dollars) to implement over 50 years. Half of these funds will be provided by the federal

government. The remainder—over \$313 million—will be paid by private entities, including water and power providers as well as municipalities in Arizona, California, and Nevada.

If FWS concludes that a proposed action will result in take of a listed species, even if it is not likely to jeopardize it or adversely modify its critical habitat, an incidental take statement will be issued to the acting agency along with the biological opinion. It must specify the impact upon the listed species, clearly set forth the amount of permitted take, and provide the standard to determine if take has been exceeded. The action agency (or private proponent of the project) is then required to fund and implement “reasonable and prudent” measures to minimize the impacts of the take of listed species.

Allowing Incidental Take

Section 10 of the ESA specifies permitted exceptions and exemptions

see ESA Overview, page 30

Glossary of Key ESA Terms*

- **adverse modification of critical habitat:** effects on a designated critical habitat, taking into account survival and recovery of the species
- **biological assessment:** evaluation of the environmental effects of the proposed action of a federal agency, prepared by that agency
- **biological opinion:** analysis of how the proposed action of a federal agency will affect listed or threatened species. Includes alternatives to the action necessary to avoid adverse modification of critical habitat or jeopardy of species, and measures to minimize take. Prepared by FWS or NMFS.
- **ESA Section 7:** Applies to federal agencies; requires them to consult with FWS or NMFS when their actions may affect listed species.
- **ESA Section 9:** Prohibits take of individual members of listed species; applies to all entities and agencies
- **ESA Section 10:** Applies to individuals and entities other than federal agencies; includes description of permitted exceptions and exemptions for take
- **habitat conservation plan:** prepared by nonfederal entities applying for incidental take permit; describes how the applicant will minimize and mitigate the likely impact of incidental take from a project
- **harm:** significant modification or degradation of a species' habitat, such that it either kills a member of the species or impairs its natural behavior.
- **jeopardize:** threaten the continued existence of a threatened or endangered species as a whole
- **take:** harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect individual members of listed species, or attempt to engage in such conduct

*These definitions were prepared by *Southwest Hydrology* to facilitate understanding by our readers. They are not intended to be the regulatory or statutory definition of the terms.

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and to reduce uncertainties about the connections between water management and ecology so as to improve future reservoir release decisions. HEC-EFM was utilized on the river to simulate cottonwood establishment for the releases in 2005 and 2006, both of which successfully established large numbers of new native trees. Results of the 2006 analyses are shown on the previous page.

Applying predictive tools like HEC-EFM allows reservoir releases and alternative water management policies to be tested before implementation to see potential impacts to the habitats of T&E species. Coupling these predictive tools with ongoing field studies in turn improves the models, which can then be used with more confidence to simulate connections between river flows and ecosystem dynamics.

Changing the Man vs. Nature Paradigm

Research on tributaries to the Colorado River is especially important given the

amount of disturbance on the mainstem. The Colorado River Basin once had the greatest number of endemic fishes of any drainage in the United States. Today, 85 percent of endemic fish species in Arizona are threatened or endangered with extinction (Warren and Burr, 1994). Their decline stems from the fact that ecosystem conditions that shaped the evolution of these fishes—flashy, warm, silt-laden rivers—to a large degree no longer exist. Flows within the lower Colorado River are now dictated by daily hydropower peaks and an elevated baseflow to provide agricultural water deliveries. These changes in flow regimes have made repatriation efforts difficult. There are, however, efforts to mimic, as closely as possible, those native ecosystem components while still having the river provide the anthropocentric services we depend upon. Examples range from releases of water from mainstem impoundments that more closely approximate natural flows, to research of individual backwaters, both natural and human-created, as refugia for these endemic species.

ESA Overview, continued from page 17 for individuals or entities other than the federal government. One such exception is Section 10(a)(1)(B) of the ESA, under which FWS or NMFS may permit the taking of listed species otherwise prohibited “if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”

If the construction or operation of a water project has incidental effects on listed species or their habitat that rise to the level of take, the project proponent must obtain an incidental take permit (ITP) from FWS or NMFS (or take coverage under Section 7, discussed above) in order to avoid liability under Section 9. Because water projects are often operated over extended periods, it is not uncommon for ITPs to be issued for 50 years or more. Obtaining the permit can take several years for a large project, during which time the applicant may not construct or operate the project if take of listed species would result.

To obtain an ITP, the applicant must

prepare a *habitat conservation plan* that specifies: 1) the likely impact of the take; 2) how the applicant intends to “minimize and mitigate” such impacts and what funding is available to do so; 3) alternative actions to the take that were considered and rejected by the applicant and the reasons they were rejected; and 4) any additional measures that may be required by the Secretary “as being necessary or appropriate for purposes of the plan.”

Habitat conservation plans also can require millions of dollars to complete. For example, the cost of implementing conservation measures in the Roosevelt Dam and Lake Habitat Conservation Plan in central Arizona (FWS, 2002), which concerned reservoir operations and benefited four bird species, was estimated by the applicant to be between \$14.6 million and \$29.4 million.

Summary

The ESA’s “take,” “jeopardy,” and “adverse modification of critical

We ask much of rivers. We rely on them for a multitude of human needs yet understand that we are not the only species that rely on them for well-being. Determining how much water—at what frequencies, intervals, and magnitudes—is necessary, especially for T&E species, is a daunting task given increasing pressure for rivers to provide human services. These determinations are based upon equal parts physical, biological, and social science. Only through improved understanding of the ecosystem processes that define a river, and the species dependent upon it, can the water needs for wildlife be determined.

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habitat” standards can be costly for water projects, and implementing the avoidance or conservation measures necessary to comply is often time- and effort-intensive. As water scarcity in the West continues, achieving the ESA’s goals will increasingly require creative solutions and alternatives, taking into account the importance of water as a resource for all living things.

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