



CO-EXISTENCE OF DAMS AND THE ENVIRONMENT

Keynote Address, 5th Annual Asia Dam Conference,
Yokohama, Japan, October 2008.

Steven L. Stockton, P.E.

Director of Civil Works, United States Army Corps of Engineers

Co-written by Richard Britzman and Brian Sullivan,

United States Army Corps of Engineers

I thank the organizers of this conference for this opportunity to speak before you. I recognize the importance of this conference in meeting the goals of all our nations – economic development, protection of the environment, and public safety.

In the United States, the Army Corps of Engineers has been involved in water resources work since 1824. Part of the reason is historic – in those days, the U.S. Military Academy was the new Nation's only engineering school and the Army had the only organization of trained engineers. Our earliest work was in navigation to link the country together and give us access to world markets, and also for military use. Then over the years, our expertise in one area of water resources led Administrations and Congresses to assign us related missions – flood risk reduction, hydroelectric power, water supply, recreation, regulation of work by others in waters of the U.S., emergency response, and our newest missions in natural resource management and aquatic ecosystem restoration.

Many of these missions called for construction of dams, and the Corps of Engineers inventory today includes 610 dams. These dams were originally authorized primarily for either flood control or navigation, but present other beneficial use opportunities for power, water supply, recreation or natural resources. The relative value of these uses increases and decreases over time with society's changing priorities.

Since the 1970's, interest in environmental stewardship has received an increasing share of public and political interest. Responsible environmental stewardship encompasses three broad areas: protection of human life, protection of property and protection of the natural environment. Protection of human life is the paramount concern of the Corps of Engineers. While secondary to human life, protection of

property and protection of the natural environment and its habitat is still essential to our mission.

In response to new public demand for consideration of environmental factors in Corps of Engineers and other construction activities, the National Environmental Policy Act (NEPA) was enacted in 1969, the Clean Water Act in 1972 and the Endangered Species Act (ESA) in 1973 to encourage harmony between man and his environment.

NEPA requires that Federal agencies identify and assess reasonable alternatives to proposed actions that impact the environment to minimize adverse effects, and encourages the use all practical means to restore and enhance the quality of the environment. The Endangered Species Act requires the preservation and reestablishment of a list of threatened and endangered species and their critical habitat.

The Corps of Engineers has established procedures to ensure that our activities comply with NEPA, based on experience which is contained in regulation. Our policy is first to avoid adverse effects on the environment wherever possible, minimize those effects that we cannot avoid, and to mitigate – take action to benefit the environment to offset the damage caused by a project. Preferably this mitigation takes place at the project site, but it can involve creation of new habitats, such as wetlands, nearby.

The Clean Water Act gives the Corps of Engineers authority to grant, or deny, permits for work by others in the waters of the United States, including many wetlands. We require permit applicants to follow the same steps – first avoid losses, then minimize, then mitigate – that we follow under NEPA.

For any project, we could be required under NEPA to undertake one of the following three levels of compliance, depending on the level of environmental impact resulting from the action.

The first level is Categorical Exclusion - for actions determined by Headquarters USACE to have no significant effects on the environment. Actions which fall under this level include routine operation and maintenance work and planning studies with no construction recommendation.

The second level of compliance is an Environmental Assessment. This level is used to determine if an action causes significant effects on the environment. Actions which require this level include changes to existing project use, such as development not proposed in project authorizations or master plans, and deviations to water control plans. This level of compliance must, at a minimum, consider the “no action” alternative. It must either reach the conclusion that there would be no significant impact, and document this in a Finding of No Significant Impact; or move on to the next level of compliance, an Environmental Impact Statement.

The third and highest level of compliance is the Environmental Impact Statement, or EIS, accompanied by a document known as a Record of Decision or ROD. It is required for all actions determined to have a significant impact on the natural environment. It requires scoping with other agencies and the concerned public. It must consider reasonable alternatives, including the “no action” alternative. Actions which normally require an EIS include authorization of major construction projects, changes to projects which increase size substantially or add purpose, and substantial revisions to water control manuals.

The Endangered Species Act, or ESA, requires that federal agencies ensure that their actions do not jeopardize the continued existence of threatened and endangered species, and preparation of recovery plans for those species. It requires the Corps to consult with the US Fish and Wildlife Service regarding effects of any action on listed species and their suitable habitat. If the action is likely to adversely affect a listed species, the Fish and Wildlife Service prepares a biological opinion, which includes reasonable and prudent measures or alternatives to avoid placing the species in jeopardy. These measures are then documented in the final NEPA document, and implemented in conjunction with the action under consideration.

Within the Corps of Engineers itself, we have developed operating principles to ensure our practices not only avoid or minimize damage to the extent possible, but also maximize opportunities to benefit the environment. The principles were first adopted in 2001 and established as policy guidance by regulation in 2003:

1. Strive to achieve environmental sustainability.
2. Recognize the interdependence of life and the physical environment.
3. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
4. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
5. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work.
6. Build and share an integrated scientific, economic and social understanding of the environment and impacts of our work.
7. Respect the views of individuals and groups interested in Corps activities; listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the Nation's problems that also protect and enhance the environment

In our activities with dams, these principles call on us to consider the relationship of the project to the environment not only at the beginning of the project life when environmental impacts are first assessed, but throughout its operationally useful life, up to the time when decommissioning and dismantling becomes a consideration.

To illustrate our experience of how dams interact with the environment, and how environmental laws and operating principles guide our work with dams, let me discuss three Corps of Engineers projects. The first is the Elk Creek Dam, in Oregon – an example of how projects conceived in the “pre-environmental” days need to be modified to meet modern expectations. In this case, the environmental concerns were

resolved after construction began by notching the dam to restore pre-project run of the river.

The second case, Isabella Dam in California, involves a dam project that was in operation for many years, but where a change in operation (resulting from four consecutive years of high pool) impacted endangered species habitat, which subsequently required protection.

Finally, the third case, Terminus Dam, also in California, involves well planned environmental mitigation associated with the modification to an existing project, increasing its operational capacity above the original authorization.



US Army Corps of Engineers



Co-Existence of Dams and the Environment



Terminus Dam and Lake Kaweah

***Steven L. Stockton, P.E.
Director of Civil Works
United States Army Corps of Engineers***





US Army Corps of Engineers



Corps of Engineers Mission

Global War on Terrorism Support

Military Programs

- Military Construction for the Modular Force
- Global Positioning
- Base Realignment
- Military Transformation
- Environmental restoration



Real Estate



- DOD Recruiting facilities
- Contingency operations
- Acquire, manage and dispose

Homeland Security



- Critical Infrastructure
- Anti Terrorism Plans
- Intelligence
- Facility Security Partnership

Interagency Support

- Federal
- State
- Local
- International



Research & Development

- Warfighter
- Installations
- Environment
- Water Resources



Civil Works



- Navigation, Hydropower
- Flood control, Shore Protection
- Water Supply, Regulatory
- Recreation, Disaster response
- Environmental Restoration



US Army Corps of Engineers



Civil Works Mission ***Provide the Nation with Responsive ...***



**Development & Management of
Water Resources Infrastructure**



**Protection, Restoration &
Management of the Environment**



Disaster Response & Recovery



Engineering & Technical Services

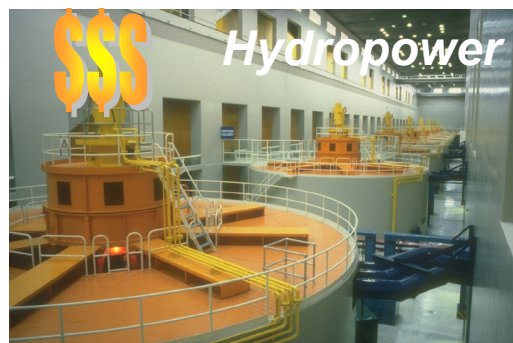
... in an environmentally, economically and technically sound manner



US Army Corps of Engineers



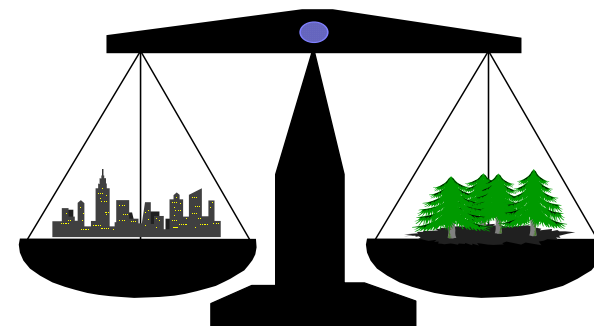
Challenge: Competing Water Uses





A New Era

- The era of large Federal, single-purpose water projects is over
- Role of the Corps as sole decision maker and technical expert for water solutions is changing
- Water resources community recognizes need for broader interest for water resources planning
- There is a need and more desire for collaborative regional planning





Major Environmental Laws Underlying Our Work

National Environmental Policy Act, 1969

Endangered Species Act, 1973



National Environmental Policy Act

- Encourage productive, enjoyable harmony between man and his environment
- Promote efforts which will prevent damage to the environment
- Enrich understanding of ecological systems and natural resources
- Integrate environmental considerations with other planning
- Encourage public involvement in decisions that affect the environment
- Identify and assess reasonable alternatives to proposed actions to minimize adverse affects
- Use all practicable means to restore and enhance the quality of the environment



Types of NEPA Compliance

- Categorical Exclusion & Memo for Record
- Environmental Assessment & Finding of No Significant Impact
- Environmental Impact Statement & Record of Decision (ROD)



Environmental Assessment & Finding of No Significant Impact

- Brief document used to determine if action causes significant effects to the environment
- Must consider “no action” as an alternative
- Usually 30-day public & agency review
- Conclusion of “No Significant Impact” necessary, or an Environmental Impact Statement must be prepared



Environmental Impact Statement

- Required for all actions determined to have significant effect to the environment
- Should be integrated with other decision documents
- Must conduct “scoping” with other agencies and concerned public
- Must consider reasonable alternatives, including “no action”
- Minimum of 45 days must be provided for review of draft Environmental Impact Statement
- Draft and Final Statements must be filed with U.S. Environmental Protection Agency



Endangered Species Act

- Federal Government determines and maintains list of threatened and endangered species and their critical habitats
- Agencies must prepare Recovery Plans for all threatened & endangered species
- **Federal agencies must ensure their actions do not jeopardize the continued existence of these species**
- Prohibits the “take” of threatened/endangered species except under permitted actions



Environmental Operating Principles

- 1. Environmental Sustainability.***
- 2. Interdependence of life and physical environment.***
- 3. Balance and synergy among human development and natural systems***
- 4. Corporate responsibility and accountability***
- 5. Assessment & mitigation of cumulative impacts***
- 6. Shared integrated scientific, economic & social knowledge base***
- 7. Respect for views of interested individuals & groups***

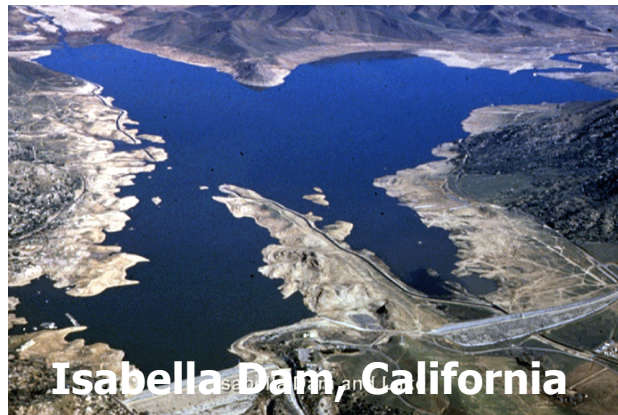




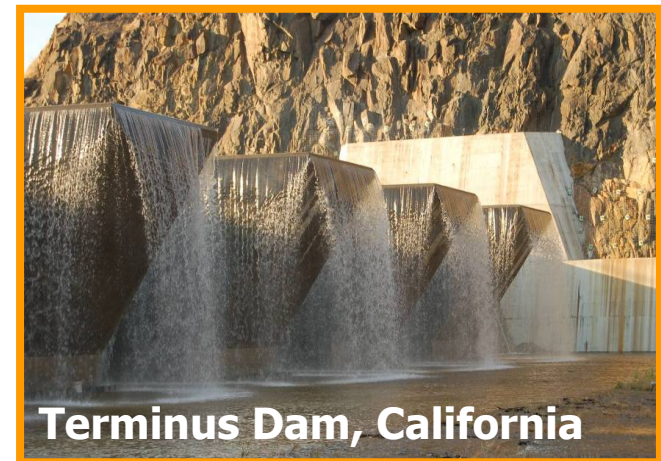
Three Case Studies



Elk Creek Dam, Oregon



Isabella Dam, California



Terminus Dam, California

Elk Creek Fish Passage Corridor, June 2008





US Army Corps of Engineers



Elk Creek Dam Fish Passage Corridor, June 2008





U.S. ARMY

US Army Corps of Engineers





US Army Corps of Engineers



Isabella Dam



Isabella Dam and Lake



US Army Corps of Engineers



Isabella SFWA Inundation





U.S. ARMY

US Army Corps of Engineers



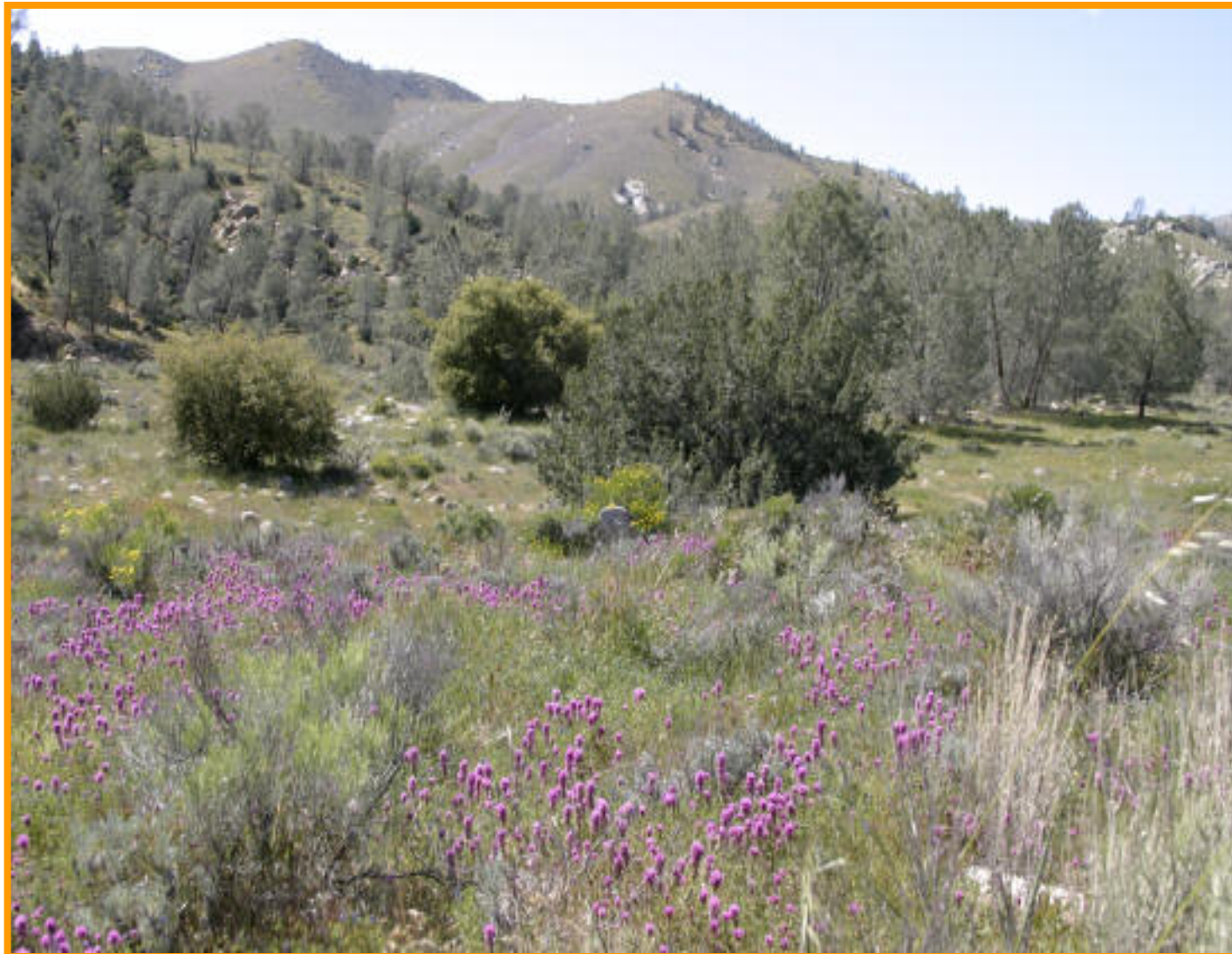
Isabella Dam



Southwestern Willow Flycatcher
(courtesy Suzanne Langridge, USGS)



Isabella Dam



Chaparral is now a component of the Kern River Preserve habitats.



US Army Corps of Engineers



Isabella South Fork Wildlife Area (SFWA)





US Army Corps of Engineers



Terminus Dam



Terminus Dam and Lake Kaweah



US Army Corps of Engineers



Spillway (Before raise)





U.S. ARMY

US Army Corps of Engineers



Spillway (After raise)





US Army Corps of Engineers



Spillway (Test Fill)





Spillway (Downstream Channel)

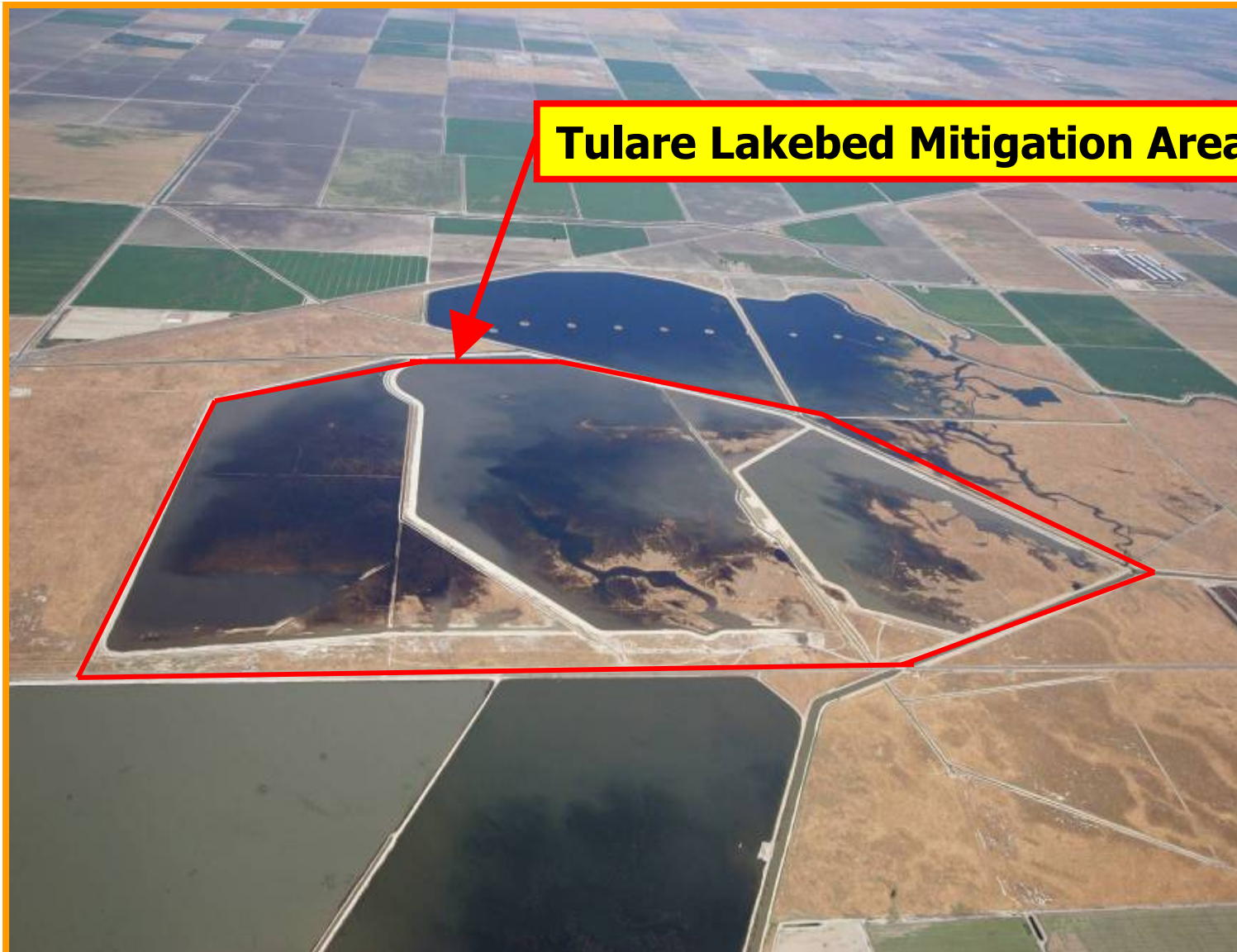




US Army Corps of Engineers



Environmental Mitigation (Shorebird habitat)





US Army Corps of Engineers



Environmental Mitigation (Shorebird habitat)





Spillway





US Army Corps of Engineers



Co-Existence of Dams and the Environment



Terminus Dam and Lake Kaweah

***Steven L. Stockton, P.E.
Director of Civil Works
United States Army Corps of Engineers***





Backup slides



Actions Normally Requiring Environmental Assessment

- Development or revision of project master plans
- Agreements to carry out land use and development not proposed in project authorization documents or master plans
- Deviations to Water Control Plans
- Transfer and grants of lands to non-federal agencies
- Real estate grants for rights-of-way involving major disturbances.



Actions Normally Requiring Environmental Impact Statement

- Substantial revisions of Water Control Manuals
- Authorization of major construction projects
- Proposed changes in projects which substantially increase size or add purposes



Corps Requirements under Endangered Species Act

- Maintain a list of threatened & endangered species that could use project lands at some point in their life history
- Develop project map of suitable habitat
- Consult with U.S. Fish & Wildlife Service regarding how to conserve species and their suitable habitat
- Consult with Fish & Wildlife Service regarding effects of any action on threatened/endangered species or their suitable habitat



Types of Effect Determinations

- Action has “no effect” on species or their habitat
- Action is “not likely to adversely effect” species or their habitat
- Action is “likely to adversely effect” T&E species or their habitat



No Effect

- No threatened or endangered species or habitat present in action area
- “No effect” determination must be documented in NEPA documentation
- Concurrence from Fish & Wildlife Service not required



Not Likely to Adversely Effect

- Effects are discountable, insignificant, or entirely beneficial
- Assessment of effects must be described in NEPA document or separate biological assessment
- Informally consult with Fish & Wildlife Service to modify action or include conservation measures if necessary
- Must get written concurrence from Fish & Wildlife Service



Likely to Adversely Effect

- Effects are not discountable, insignificant, or entirely beneficial
- Describe effects in NEPA document or separate biological assessment
- Request formal consultation with Fish & Wildlife Service, who prepares biological opinion (BO)



Biological Opinion Is Necessary If...

- Action is likely to jeopardize continued existence of species
- Action is likely to adversely modify critical habitat
- Action will cause any incidental “take” of the species. “Reasonable and prudent measures” (RPM’s) are required to minimize take
- Species are placed in jeopardy. “Reasonable and prudent alternatives” (RPA’s) are required to avoid jeopardy



US Army Corps of Engineers



Elk Creek Dam Fish Passage Corridor, June 2008





Isabella Dam



The hills and grassland to the left of the forest comprise just a portion of the new property of the Kern River Preserve. The riparian (riverbank) forest on the right is part of the Kern River Preserve and is watered by the free flowing South Fork Kern River.



US Army Corps of Engineers



Kern River Preserve





US Army Corps of Engineers



Spillway (Test Fill)

