

Appendix H

**U.S. Fish and Wildlife Service
Coordination Act Report**



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

In reply refer to:
CRC-HC-DMC Intertie

APR 27 2009

Memorandum

To: Regional Director, Bureau of Reclamation, Mid-Pacific Region
Sacramento, California

From: Assistant Field Supervisor, Sacramento Fish and Wildlife Office
Sacramento, California *[Signature]*

Subject: Amendments to the Fish and Wildlife Coordination Act Report for the Delta-Mendota Canal/California Aqueduct Intertie Project: Bureau of Reclamation and San Luis Delta Mendota Water Authority

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) amendments to the April 2005 Fish and Wildlife Coordination Act (FWCA) report (Service 2005), as provided for in Section 2(b) of the FWCA (48 stat. 401, as amended), for the Delta-Mendota Canal/California Aqueduct Intertie Project (Intertie project). The FWCA report assessed potential project effects on fish and wildlife resources and provided our preliminary recommendations to avoid, minimize, rectify or compensate for potential adverse effects. The amendments to the FWCA report are based on the information contained in the March 2009 Administrative Draft Delta-Mendota Canal/California Aqueduct Intertie Project Environmental Impact Statement (EIS) (U.S. Bureau of Reclamation [Reclamation] 2009). This memorandum has also been submitted to California Department of Fish and Game (CDFG) and National Oceanic Atmospheric Administration/National Marine Fisheries Service (NOAA Fisheries) for their review and comment. Details of the project's effects on federally listed species, pursuant to section 7 of the Endangered Species Act of 1973, as amended, (ESA) are being addressed separately.

Background

In December 2004, Reclamation and the San Luis Delta Mendota Water Authority (Authority) issued an Environmental Assessment/Initial Study (EA/IS) for the Intertie project (Reclamation 2004). The Service provided Reclamation the Final FWCA report (Service 2005) for the Intertie project on April 26, 2005 (attached below), based on the December 2004 EA/IS. The Authority adopted a Mitigated Negative Declaration on April 20, 2005, and Reclamation adopted a Finding of No Significant Impact (FONSI) in May 2005. On August 31, 2005, the Planning and Conservation League brought suit against the FONSI under the National Environmental Policy Act (NEPA). Reclamation committed to preparing an EIS for the Intertie project, and the suit was dropped. In March 2009, the Service received the Administrative Draft Delta-Mendota Canal/California Aqueduct Intertie Project EIS (Reclamation 2009).

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Amendments to the Project Description

The Service notes the following changes in the description of the Proposed Action (Alternative 2) in the March 2009 Administrative Draft EIS (Reclamation 2009) compared to what was described in the December 2004 EA/IS (Reclamation 2004) and the April 2005 FWCA report (Service 2005).

- The Proposed Action would result in the transfer of up to 467 cubic feet per second (cfs) of water from the Delta-Mendota Canal to the California Aqueduct instead of 400 cfs stated in the December 2004 EA/IS and April 2005 FWCA report. The maximum average monthly pumping, however, is expected to be around 400 cfs.
- The Proposed Action would result in the transfer of up to 900 cfs of water from the California Aqueduct to the Delta-Mendota Canal by gravity flow instead of 950 cfs stated in December 2004 EA/IS and April 2005 FWCA report.
- The 500-foot-long underground pipeline (intertie) would connect from milepost 7.2 on the Delta Mendota Canal to milepost 9.0 on the California Aqueduct. The December 2004 EA/IS and April 2005 FWCA report stated milepost 9.1 on the California Aqueduct.
- The Proposed Action would include the construction of a 4.5-mile long 69-kV transmission line to connect the Intertie pumping plant to the Tracy substation. The transmission line would run parallel to and along the west side of the Delta-Mendota Canal. The average span length across straight segments of the transmission line would be about 300 feet. The total permanent ground disturbance for the entire transmission line would be 0.005 to 0.02 acre. The Administrative Draft EIS (Reclamation 2009), however, does not state the amount of temporary disturbance that would result from the construction of the transmission line. Operation and maintenance activities within the transmission line right-of-way would be limited to once per year.
- The construction of the underground pipeline, switchyard, pumping station, and access road in the Proposed Action would result in impacts to 1.5 acres of annual grassland habitat (1.4 acres permanent and 0.1 acre temporary) instead of the 5.0 acres (0.5 acre permanent and 4.5 acres temporary) stated in the December 2004 EA/IS and April 2005 FWCA report. The exterior of the switchyard and pumping station facilities would be lighted. Lights would be installed at the lowest allowable height; the lowest allowable wattage would be used; lights would be screened and directed away from the night sky to the highest degree possible; and the amount of nighttime lights used would be minimized to the highest degree possible.

The Service amends the April 2005 Delta-Mendota Canal/California Aqueduct Intertie Project FWCA report (included as appendix below) (Service 2005) to include the above changes to the project description. The proposed 4.5-mile long 69-kV transmission line was not included in the project description in the December 2004 EA/IS (Reclamation 2004) and the April 2005 FWCA report (Service 2005). Thus, the effects of the proposed transmission line on migratory birds are discussed below.

Effects of the Transmission Line on Migratory and Special-Status Bird Species

The Central Valley is one of the most important regions in western North America to migratory and wintering shorebirds and waterfowl, supporting up to 60 percent of the total Pacific Flyway population in some years (Central Valley Joint Venture 2006, Shuford *et al.* 1998). Table 1 below lists the special-status migratory bird species with the potential to occur in the project area. Special-status bird species are those that are 1) federally-listed as endangered or threatened or a candidate for listing under ESA; 2) State-listed as endangered, threatened, or a candidate for

Table 1. Special-Status Avian Species Potentially Occurring in the Delta-Mendota Canal/California Aqueduct Intertie Project Area (continues on next pages).

Common Name	Scientific Name	Status ¹	Habitat/Occurrence
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	--	Winters in California. Lacustrine, fresh emergent wetlands, and moist grasslands, croplands, pastures, and meadows. Breeds in Alaska.
American peregrine falcon	<i>Falco peregrinus anatum</i>	CE,CPD, CFP, BCC	Year-round resident along coast, Coast Ranges, and Sierra Nevada. Winter resident in Central Valley. Breeds early March-late August. Woodland, forest, coastal, riparian, lacustrine, wetlands. Nest in high cliffs near lakes, rivers, or wetlands or in tall buildings or bridges. Forage in croplands and annual grasslands. 2 observed near Stockton and 2 in East Contra Costa County (National Audubon Society [Audubon] 2008).
American white pelican	<i>Pelecanus erythrorhynchos</i>	CSC	Year-round resident or winter migrant. Lacustrine, estuarine, salt ponds. Formerly bred in large numbers in Central Valley. Observed during Audubon Christmas Count in East Contra Costa County (Audubon 2008).
American wigeon	<i>Anas americana</i>	GBBDC	Common September-April. Lacustrine, fresh emergent and nearby herbaceous and croplands. Rarely nests in California. 183 observed during Audubon Christmas Count near Stockton (Audubon 2008).
Bald eagle	<i>Haliaeetus leucocephalus</i>	CE,BGE, CFP,BCC	Year-round resident or winter migrant. Lacustrine, riverine. Observed during Audubon Christmas Count in East Contra Costa County (Audubon 2008).
Barrow's goldeneye	<i>Bucephala islandica</i>	CSC	Winters October-March in riverine and lacustrine waters with rocky bottoms. Formerly nested in California, near alkaline lakes or slow moving rivers with abundant submerged aquatic vegetation and open water. Observed during Audubon Christmas Count (Audubon 2008).
Black-crowned night heron	<i>Nycticorax nycticorax</i>	--	Year-round resident. Lacustrine, estuarine, fresh and saline emergent wetlands, riverine. Breeds February-July. Nests in dense foliated-trees and dense emergent wetlands. 52 observed near Stockton and 1 near East Contra Costa County (Audubon 2008).
California gull	<i>Larus californicus</i>	WL	Lacustrine, estuarine, salt ponds, coastal, fresh and saline emergent wetland, riverine, cropland. Formerly bred in Central Valley, now nests near Mono Lake. Observed during Audubon Christmas Count (Audubon 2008).
California horned lark	<i>Eremophila alpestris actia</i>	WL	Year-round resident. Breeds March-July. Nests on the ground in the open. Grassland, alkali flats, fallow grain fields. Observed during Audubon Christmas Count (Audubon 2008).
Canvasback	<i>Aythya valisineria</i>	GBBDC	Winters September-May. Estuarine, lacustrine. 3,527 observed during Audubon Christmas Count near Stockton and 1,727 observed in East Contra Costa County (Audubon 2008).
Clark's grebe	<i>Aechmophorus clarkii</i>	BCC/c, CSC/c	Winters October-May along coast and inland lakes at low elevations. Breeds May-September on large marshy lakes (e.g., Sacramento River NWR, Lake Havasu, Salton Sea, Goose Lake, Sweetwater Reservoir). Require large, open waters for courtship, feeding, and flocking, and frequent extensive beds of tall, emergent vegetation such as tules or cattails for nesting. Observed during Audubon Christmas Count (Audubon 2008).
Cooper's hawk	<i>Accipiter cooperii</i>	WL	Year-round resident. Breeds March-August. Dense stands of live oak, riparian deciduous, and other woodland. 10 observed near Stockton and 3 in East Contra Costa County (Audubon 2008).

Status definitions are on p. 7.

Table 1 (continued). Special-Status Avian Species Potentially Occurring in the Delta-Mendota Canal/California Aqueduct Intertie Project Area (continues on next pages).

Common Name	Scientific Name	Status ¹	Habitat/Occurrence
Double-crested cormorant	<i>Phalacrocorax auritus</i>	WL	August-May in Central Valley lacustrine, riverine habitat. Breeds April-August along coast, inland lakes, estuaries. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008) and Audubon Christmas Count (Audubon 2008).
Ferruginous hawk	<i>Buteo regalis</i>	WL, BCC	September- mid-April. Open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats. Observed during Audubon Christmas Count (Audubon 2008).
Golden eagle	<i>Aquila chrysaetos</i>	WL, CFP, BG	Winters in Central Valley; migrates upslope to breed. Year-round resident in most of the rest of California. Breeds late January-August (peak in March-July). Grassland, savanna, desert, early-successional forest and shrub. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008). 10 observed in East Contra Costa County (Audubon 2008).
Grasshopper sparrow	<i>Ammodramus savannarum</i>	CSC	Summer resident March-September. Breeds April- mid-July (peak May-June). Dry, dense grasslands with tall forbs and scattered shrubs.
Great blue heron	<i>Ardea herodias</i>	--	Year-round resident. Estuarine, fresh and saline emergent wetlands, croplands, pastures, salt ponds, riverine. Breeds February-March. Most nestlings fledge June-July. Nests in colonies in tops of secluded large snags or live trees, usually among the tallest available. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008) and Audubon Christmas Count (Audubon 2008).
Great egret	<i>Ardea alba</i>	--	Year-round resident. Nests March-July in large trees near water. Estuarine, fresh and saline emergent wetlands, lacustrine, croplands, pastures, salt ponds, riverine. 260 observed near Stockton and 60 in East Contra Costa County (Audubon 2008).
Greater sandhill crane	<i>Grus canadensis tabida</i>	CT, CFP	September-April. Roost in shallow seasonal wetlands and forage in cropland and irrigated pasture (rice, corn, wheat, barley, oats, rye, sorghum, buckwheat, legumes, alfalfa).
Greater scaup	<i>Aythya marila</i>	GBBDC	October-May. Bays, estuaries, lakes, emergent wetlands. Does not breed in California.
Greater white-fronted goose	<i>Anser albifrons frontalis</i>	GBBDC	Early October-mid March in San Joaquin Valley. Moist and wet grasslands, pastures, croplands, meadows, fresh emergent wetlands, lacustrine habitat and, less commonly, in estuarine and saline (brackish) emergent habitats. 5000 observed during Audubon Christmas Count in East Contra Costa County; 10,359 near Stockton (Audubon 2008).
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	BCC	April-September. Breeds in open oak or other arid woodland and chaparral, near water, valley foothill hardwood, valley foothill hardwood-conifer. Forages in grasslands.
Lesser sandhill crane	<i>Grus canadensis canadensis</i>	CSC (wintering)	September-April. Roost in shallow seasonal wetlands and forage in cropland and irrigated pasture (rice, corn, wheat, barley, oats, rye, sorghum, buckwheat, legumes). Particularly drawn to alfalfa. 11,101 observed during Audubon Christmas Count near Stockton; 45 observed in East Contra Costa County (Audubon 2008).
Lesser scaup	<i>Aythya affinis</i>	GBBDC	September-May in estuarine, lacustrine habitat in California. 2 observed during Audubon Christmas Count near Stockton and 192 in East Contra Costa County (Audubon 2008).

¹ Status definitions are on p. 7.

Table 1 (continued). Special-Status Avian Species Potentially Occurring in the Delta-Mendota Canal/California Aqueduct Intertie Project Area (continues on next pages).

Common Name	Scientific Name	Status ¹	Habitat/Occurrence
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC	Breeds May-July eastern slope Coast Ranges, Sierra Nevada, Klamath Mountains, Cascades. Winter migrant in Central Valley. Open oak savannahs, broken deciduous, and coniferous habitats. Observed during Audubon Christmas Count (Audubon 2008).
Loggerhead shrike	<i>Lanius ludovicianus</i>	CSC, BCC	Year-round resident. Lays eggs March-May, young become independent July-August. Open-canopied valley foothill woodland, valley foothill riparian, hardwood-conifer, pinyon-juniper, desert riparian. Observed during USGS Breeding Bird Survey Tracy route (Sauer et al. 2008) and Audubon Christmas Count (Audubon 2008).
Long-billed curlew	<i>Numerius americanus</i>	WL, BCC	Early July-early April. Estuarine, grassland, wet meadows, cropland, salt ponds. Observed during Audubon Christmas Count (Audubon 2008).
Long-eared owl	<i>Asio otus</i>	CSC	Year-round resident or winter visitor. Breeds early March-late July. Riparian habitat required; also uses live oak thickets and other dense stands of trees.
Mallard	<i>Anas platyrhynchos</i>	GBBDC	Year-round resident. Nest late February-June (peak in early April). Young fly 40-60 days after hatching. Fresh emergent wetlands, estuarine, lacustrine, and riverine habitats, ponds, pastures, croplands, and urban parks. Observed during USGS Breeding Bird Survey Tracy route (Sauer et al. 2008) and Audubon Christmas Count (Audubon 2008).
Merlin	<i>Falco columbarius</i>	WL	September-May. Coast, open grassland, savannah, woodland, lacustrine, wetland. 4 observed near Stockton and 2 in East Contra Costa County (Audubon 2008).
Modesto song sparrow	<i>Melospiza melodia mailliardi</i>	CSC	Year-round resident, nesting begins in April. Woody riparian habitat. Observed during USGS Breeding Bird Survey Tracy route (Sauer et al. 2008) and Audubon Christmas Count (Audubon 2008).
Mountain plover	<i>Charadrius montanus</i>	CSC, BCC	September-March. Wintering habitat consists of sparse, short, grasslands, and plowed fields in the Central Valley.
Northern harrier	<i>Circus cyaneus</i>	CSC, BCC	Year-round or winter resident. Breeds April-September. Riparian, wetland, grassland, shrubland, agricultural. Observed during USGS Breeding Bird Survey Tracy route (Sauer et al. 2008) and Audubon Christmas Count (Audubon 2008).
Northern pintail	<i>Anas acuta</i>	GBBDC	July-April. Lacustrine and estuarine habitats, fresh and saline emergent wetlands, and wet croplands, pastures, grasslands, and meadows. 3,270 observed during Audubon Christmas Count near Stockton and 500 in East Contra Costa County (Audubon 2008).
Nuttall's woodpecker	<i>Picoides nuttalli</i>	BCC	Year-round resident. Breeds late March-early July. Low-elevation riparian deciduous and oak habitats. Requires snags and dead limbs for nest excavation. Observed during USGS Breeding Bird Survey Tracy route (Sauer et al. 2008) and Audubon Christmas Count (Audubon 2008).
Oak titmouse	<i>Baeolophus inornatus</i>	BCC	Year-round resident. Breeds March-June (peak in April-May). Montane hardwood-conifer, montane hardwood, blue, valley, and coastal oak woodlands, and montane and valley foothill riparian habitats Observed during USGS Breeding Bird Survey Tracy route (Sauer et al. 2008) and Audubon Christmas Count (Audubon 2008).
Osprey	<i>Pandion haliaetus</i>	WL	Year-round resident or summer visitor. Breeds March-September. Observed during Audubon Christmas Count (Audubon 2008).

¹ Status definitions are on p. 7.

Table 1 (continued). Special-Status Avian Species Potentially Occurring in the Delta-Mendota Canal/California Aqueduct Intertie Project Area (continues on next pages).

Common Name	Scientific Name	Status ¹	Habitat/Occurrence
Prairie falcon	<i>Falco mexicanus</i>	WL, BCC	Year-round resident. Breeds mid-February-mid-September (peak in April-early August). Shrubland and grassland. Requires sheltered cliff ledges for cover. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008) and Audubon Christmas Count (Audubon 2008).
Redhead	<i>Aythya americana</i>	CSC, GBBDC	Winter or year-round resident. Breeds April-August. Nests in fresh emergent wetland bordering open water. 2 observed during Audubon Christmas Count near Stockton (Audubon 2008).
Ring-necked duck	<i>Aythya collaris</i>	GBBDC	September-May. Freshwater lacustrine. 224 observed during Audubon Christmas Count near Stockton and 33 near East Contra Costa County (Audubon 2008).
Sharp-shinned hawk	<i>Accipiter striatus</i>	WL	Winters downslope, summers upslope or north of California. Breeds April-August (peak in late May-July). Riparian, ponderosa pine, black oak, deciduous, mixed conifer. 8 observed near Stockton and 3 in East Contra Costa County (Audubon 2008).
Short-eared owl	<i>Asio flammeus</i>	CSC, BCC	Winter or year-round resident. Breeds early March-July. Grasslands, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands. Observed during Audubon Christmas Count (Audubon 2008).
Snowy egret	<i>Egretta thula</i>	USBCW	Year-round resident. Breeds late April-late August. Estuarine, fresh and saline emergent wetlands, ponds, lacustrine, irrigation ditches, croplands, pastures, salt ponds, riverine. 111 observed near Stockton and 18 near East Contra Costa County (Audubon 2008).
Swainson's hawk	<i>Buteo swainsoni</i>	CT,BCC	March-October. Breeds late March-late August. Riparian, wetlands, grassland, agricultural. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008).
Tricolored blackbird	<i>Agelaius tricolor</i>	CSC, BCC	Year-round resident. Breeds mid-April-late July. Riparian, wetlands, ponds, grasslands, croplands. Observed during Audubon Christmas Count (Audubon 2008).
Western burrowing owl	<i>Athene cunicularia hypugea</i>	CSC, BCC	Year-round resident. Breeds March-August with peak April-May. Grasslands. Nests in small mammal burrows. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008) and Audubon Christmas Count (Audubon 2008).
Western grebe	<i>Aechmophorus occidentalis</i>	BCC/c, CSC/c	Winters October-May along coast, estuaries, and large inland lakes at low elevations. Breeds May-September on large marshy lakes (e.g., Sacramento River NWR, Lake Havasu, Salton Sea, Goose Lake, Sweetwater Reservoir). Prefer large, open waters for courtship, feeding, and flocking, and frequent extensive beds of tall, emergent vegetation such as tules or cattails for nesting, but some nests reported in open water or on shore. Observed during Audubon Christmas Count (Audubon 2008).
White-tailed kite	<i>Elanus leucurus</i>	CFP	Year-round resident. Breeds February-October with peak May-August. Open grassland, open woodland, agriculture, emergent wetland. Observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008) and Audubon Christmas Count (Audubon 2008).

¹ Status definitions are on p. 7.

Table 1 (continued). Special-Status Avian Species Potentially Occurring in the Delta-Mendota Canal/California Aqueduct Intertie Project Area.

Common Name	Scientific Name	Status ¹	Habitat/Occurrence
Wood duck	<i>Aix sponsa</i>	GBBDC	Year-round resident or winter migrant. Breeds April-August. Lacustrine, slow-moving riverine, and emergent wetland habitats bordered by willows, cottonwoods, or oaks. Nests in cavities in trees, pileated wood pecker nest-cavities, or old, rotted flicker cavities near water. 21 observed during Audubon Christmas Count near Stockton (Audubon 2008).
Yellow-billed magpie	<i>Pica nuttalli</i>	BCC	California Central Valley and Central Coast ranges endemic. Year-round resident. Breeds late February-mid July (peak in May-June). Valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, orchard, vineyard, cropland, pasture, and urban habitats. Population numbers have dropped by 49% over two years since the West-Nile virus was established in California in 2004 (Crosbie <i>et al.</i> 2008). Frequently observed during USGS Breeding Bird Survey Tracy route (Sauer <i>et al.</i> 2008) and Audubon Christmas Count (Audubon 2008).

Sources: (Zeiner *et al.* 1988-1990; Sauer *et al.* 2008; National Audubon Society [Audubon] 2008; CDFG 2009).

¹ STATUS

State

CE = California Endangered

CFP = California Fully Protected Species

CSC = California Species of Special Concern

CSC/c = recommended to be added to the list of California Species of Special Concern (Ivey 2004)

CT = California Threatened

CPD = California Proposed Delisting

WL = California Department of Fish and Game Watch List

Federal

FE = Federal Endangered

FT = Federal Threatened

FPD = Federal Proposed Delisting

BCC = Bird of Conservation Concern at the national or regional scale (Service 2008)

BCC/c = recommended to be added to the Service's Birds of Conservation Concern list (Ivey 2004)

GBBDC = Game Bird Below Desired Condition (Service Bird of Management Concern)

USBCW = United States Bird Conservation Watch List (Partners in Flight Watch List, the United States Shorebird Conservation Plan Watch List, and the Waterbird Conservation for the Americas Watch List)

-- = No special-status but protected by the Migratory Bird Treaty Act.

FC = Federal Candidate
BGE = Bald and Golden Eagle Protection Act

listing under the California Endangered Species Act (CESA); 3) a California Fully Protected Species; 4) a California Species of Special Concern or on the CDFG Watch List; 5) protected under the Bald and Golden Eagle Protection Act; 6) listed by the Service as a Bird of Management Concern under the Migratory Bird Treaty Act (50 CFR 10.13) (e.g., Bird of Conservation Concern at the national or regional level or a Game Bird Below Desired Condition [Service 2008]); or 8) on the United States Bird Conservation Watch List (e.g., Partners in Flight Watch List, the United States Shorebird Conservation Plan Watch List, and the Waterbird Conservation for the Americas Watch List). Common migratory bird species are those that are protected by the Migratory Bird Treaty Act, but are not special-status bird species as defined above.

The 4.5-mile long 69-kV transmission line currently proposed in the March 2009 Administrative Draft EIS (Reclamation 2009) could result in additional impacts to migratory birds and bats that were not identified in the April 2005 FWCA report (Service 2005) and December 2004 EA/IS (Reclamation 2004). The Avian Power Line Interaction Committee [APLIC] reports, "Of the 31 species of diurnal raptors and 19 species of owls that regularly breed in North America, 29 have been reported as electrocution victims. Electrocutions have also been reported in over 30 non-raptor North American species, including crows, ravens, magpies, jays, storks, herons, egrets, pelicans, gulls, woodpeckers, sparrows, kingbirds, thrushes, starlings, pigeons and others (p. 24, APLIC 2006)." Raptors, particularly golden eagles, bald eagles, red-tailed hawks, ferruginous hawks, Swainson's hawks, rough-legged hawks, and great horned owls, having the highest incidence of electrocution (APLIC 2006). PacificCorp (unpubl. data) reported 103 avian electrocutions during systematic line surveys in southern Oregon and northern California in 2004 and 2005; 37 percent of the avian mortalities were red-tailed hawks, 5 percent were golden eagles, 5 percent were bald eagles, and 2 percent were magpies (APLIC 2006). Electrocution has been documented as the cause of death in 16 percent of golden eagles radio-tagged and recovered from 1994-1997 in California (Predatory Bird Research Group 1999).

Migratory birds are also frequently killed by colliding with transmission lines. These collisions typically occur in foggy and windy conditions and result in mortality (Tacha *et al.* 1978, Lewis 1974, Nesbitt and Gilbert 1976, Littlefield and Ivey 2000). Conservative estimates report tens of thousands of avian fatalities in the United States per year due to collisions with transmission lines (Manville 2000). However, another report estimates, based on bird collisions data from the Netherlands (Koops 1987), as many as 130 million to 170 million birds are killed in the United States each year due to colliding with transmission lines (National Wind Coordinating Committee 2001). The risk of collision is highest for waterfowl and waterbirds (e.g., ducks, geese, herons and cranes) due to their inability to quickly maneuver around the lines (National Wind Coordinating Committee 2001). Collisions occur most often in areas where a transmission line intersects bird breeding and feeding areas, such as water bodies or wetlands. In upland habitats, passerines and raptors are most susceptible to collisions (National Wind Coordinating Committee 2001).

In the Proposed Action, waterfowl, waterbirds, raptors, and passerines, would all be at risk of colliding with the transmission line due to its proposed location adjacent to aquatic (canal) and upland (annual grassland) habitat. Greater sandhill crane collisions with power lines have been reported by several authors (Pogson and Lindstedt 1988, Tacha *et al.* 1978, Walkinshaw 1956, Drewien 1973, Lewis 1974, Nesbitt and Gilbert 1976, California Energy Commission 1995). Collisions with power lines accounted for 37 percent of the observed sandhill crane mortality in the study population (Drewien 1973). Power line collisions seem to be the largest source of

unnatural mortality for California's Central Valley sandhill crane population (Pogson and Lindstedt 1988). In one collision incident in Texas (*i.e.*, one day), 52 sandhill cranes were found dead or dying from impacts with distribution lines (Tacha *et al.* 1978). At Modoc National Wildlife Refuge in northeastern California, 22 sandhill cranes are known to have been killed in a single day (CDFG 1994). With the use of power line markers (particularly bright orange spheres), power line mortalities have been virtually eliminated at some crane high-use areas in Oregon, Colorado, New Mexico, Wyoming, and the Modoc National Wildlife Refuge (CDFG 1994). However, it is not known how successful the power line markers are in preventing or reducing power line mortalities for other bird species.

Inclusion of the Proposed Action in the Revised Operations Criteria and Plan (OCAP) Biological Opinions

The Intertie project was included in the 2008 Operating Criteria and Plan (OCAP) Biological Assessment, which addresses system-wide operations for Central Valley Project (CVP) and State Water Project (SWP) facilities. To ensure consistency between NEPA and ESA analysis for the Intertie, modeling assumptions for the Intertie analysis in the EIS were based on modeling assumptions used in the OCAP. The subsequent biological opinions issued by the Service and NOAA Fisheries include operational constraints that affect how and when the Intertie is operated. The analysis contained in the EIS includes the maximum effects of operating the Intertie (*i.e.*, no OCAP restrictions). It is likely that the actual effects of the Intertie will be less because of the OCAP operational constraints that will be in place.

Additional Recommendations

The Service initially provided recommendations in the April 2005 FWCA report (Service 2005) for avoiding, minimizing, and compensating for impacts to fish and wildlife resources from the Proposed Action. The additional recommendations below are intended to supplement the Service's recommendations in the April 2005 FWCA report.

1. Incorporate the avoidance and minimization measures identified for migratory birds in the March 2009 Administrative Draft EIS (Reclamation 2009).
2. Minimize impacts to annual grassland habitat that is temporarily disturbed by reseeding with native grasses and forbs only.
3. Compensate for permanent impacts to 1.4 acres of annual grassland habitat (and temporary impacts as a result of the project including maintenance and operation of the transmission line) by restoring a minimum of 1.4 acres of agricultural fields to native grassland near the project area.
4. Minimize the impacts of light pollution on migratory birds and bats (Fure 2006) by following the measures proposed in the March 2009 Administrative Draft EIS (Reclamation 2009) and below:
 - a. Avoid illuminating bat roosting areas (*e.g.*, suitable crevices in overcrossings along canals).
 - b. Use low-pressure sodium lamps instead of high-pressure sodium or mercury lamps; fit mercury lamps with UV filters.
 - c. Maintain the brightness as low as possible (less than 2000 lumens (150 watts) are generally needed for security lights).
 - d. Limit the times during which the lighting can be used to provide some dark periods.

- e. Direct the lighting to where it is needed to avoid light spillage; minimize upward lighting to avoid light pollution; limit the height of lighting columns to 26 feet; use plantings to screen out light.
 - f. Enhance bat roosting habitat by installing bat boxes away from artificial light sources.
 - g. Minimize the impacts of the project on bat foraging by restricting the use of insecticides.
5. Minimize the impacts of the proposed 4.5-mile long 69-kV transmission line on migratory birds and bats by placing the transmission line underground. If this is not feasible or would result in significant impacts to federally- or State-listed species (ESA or CESA), then follow the recommendations and suggested practices in the power line guidelines published by the Avian Power Line Interaction Committee (APLIC) and the Service to minimize impacts from existing facilities and in the construction of new utility and energy systems and associated infrastructure (APLIC 1994, 1996, and 2006; APLIC and Service 2005).
- a. Develop an Avian Protection Plan that minimizes the risk of electrocution, collision, and nest disturbance for migratory birds (APLIC and Service 2005).
 - b. Use a horizontal and vertical separation between energized and/or grounded parts that allows sufficient clearance for wrist-to-wrist (flesh-to-flesh) and head-to-foot (flesh-to-flesh) clearance for the largest migratory birds in the project area. The standard 60 inches of horizontal separation and 40-48 inches of vertical separation between energized and/or grounded parts are generally recommended for eagles but may not be sufficient for wading birds, white pelicans, and California condors, which have a larger height and greater wingspan (APLIC 2006). In particular areas (*i.e.* areas with concentrations of wading birds and pelicans), vertical separation may need to be increased to 65 inches, and horizontal separation may need to be increased to 120 inches (APLIC 2006).
 - c. Cover exposed grounded or energized parts to prevent avian contact.
 - d. Minimize the risk of collision by removing the overhead ground wire, or marking the line to increase visibility (*e.g.*, marker balls, swinger markers, or bird flight diverters).
 - e. Monitor and report to the Service and CDFG any bird mortalities associated with the transmission line. Retrofit or modify power poles where a protected bird has died. Modifications should be in accordance with APLIC guidelines.
 - f. Inventory and monitor bird populations and habitats, as appropriate and feasible, to facilitate decisions about the need for, and effectiveness of, conservation efforts.
 - g. The Avian Protection Plan should also include measures to minimize the negative effects of increasing artificial perches for raptors in areas containing sensitive prey species (*e.g.*, California red-legged frog, California tiger salamander, western spadefoot toad, coast horned lizard, and western burrowing owl). Monitor the effects of increasing artificial perches for raptors on sensitive prey populations in the area and the effectiveness of measures to prevent increased predation.
 - h. Avoid disturbing sensitive habitats (*e.g.*, wetlands) during construction and operation and maintenance within the transmission line right-of-way.
 - i. Compensate for the impacts of the transmission line on migratory birds and bats by collaborating with the California Public Utility Commission and funding the retrofitting of existing transmission and distribution lines that have the highest risk of avian and bat mortalities.

6. The Service recommends working toward making the proposed project carbon neutral. Consistent with the Intergovernmental Panel on Climate Change (IPCC) (2007) adaptation strategies/mitigation recommendations, the Service recommends compensating for the proposed project's carbon footprint (1,726.13 metric tons of carbon dioxide) by purchasing carbon offsets. Alternatively, carbon offsets could be achieved through implementation of recommendation # 3 above (sequester carbon by converting tilled agricultural fields near the project area to native grasslands).
7. Continue to include in all of the project alternatives the new rules for OCAP identified in the Service's and NOAA Fisheries' revised biological opinions.
8. Consult with the Service under ESA for impacts to federally-listed species (*e.g.*, California red-legged frog, California tiger salamander, San Joaquin kit fox, longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp).
9. Consult with CDFG under CESA and the California Environmental Quality Act (CEQA) for impacts to State-listed and Fully Protected species and Species of Special Concern.
10. Consult with the Service under the Bald and Golden Eagle Protection Act for impacts to the bald eagle and golden eagle from the transmission line and habitat disturbance. Consult with CDFG under CESA for impacts to the State-listed endangered and Fully Protected bald eagle and the Fully Protected golden eagle.

Any questions or comments regarding this report should be directed to Mark Littlefield or Joseph Terry at (916) 414-6600.

cc:

Maria Rea, NOAA Fisheries, Sacramento, California
Sandy Morey, CDFG, Rancho Cordova, California

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United States Department of the Interior



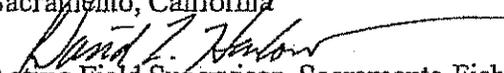
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:

Memorandum

APR 26 2005

To: Regional Director, U.S. Bureau of Reclamation,
Sacramento, California

From: 
Acting Field Supervisor, Sacramento Fish and Wildlife Office,
Sacramento, California

Subject: Fish and Wildlife Coordination Act Report for the Delta-Mendota
Canal/California Aqueduct Intertie Project: Bureau of Reclamation and Delta-
Mendota Canal Authority

This memorandum transmits the Fish and Wildlife Service's Fish and Wildlife Coordination Act Report for the Delta-Mendota Canal/California Aqueduct Intertie Project. This report has been coordinated with California Department of Fish and Game and National Oceanic and Atmospheric Administration National Marine Fisheries Service. The project's effects on federally listed species, pursuant to section 7 of the Endangered Species Act of 1973, as amended, was completed on February 15, 2005 and is attached.

If you have any questions, please contact John Brooks at (916) 414-6726 or Ryan Olah at (916) 414-6625.

Attachment

cc:
CNO, Sacramento, California
Brian Kinnear, NMFS, Sacramento, California
Gary Hobgood, CDFG, Rancho Cordova, California

TAKE PRIDE
IN AMERICA 

United States Department of the Interior
Fish and Wildlife Service

Fish and Wildlife Coordination Act Report

Delta-Mendota Canal/California Aqueduct Intertie Project

Bureau of Reclamation and San Luis & Delta-Mendota Water Authority



Sacramento Fish and Wildlife Office
Sacramento, California

April 2005

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INTRODUCTION

This document constitutes the U. S. Fish and Wildlife Service's (Service) Fish and Wildlife Coordination Act (FWCA) Report (Report) to the U.S. Bureau of Reclamation (Reclamation) for the Delta-Mendota Canal/California Aqueduct Intertie Project (Project). The FWCA requires Federal agencies to consult with the Service before undertaking or approving projects carried out under Federal permits and licenses that control or modify any bodies of water for any purpose, and that fish and wildlife resources receive equal consideration and be coordinated with other features of the projects. The purpose of FWCA consultation is to conserve fish and wildlife resources by preventing their loss or damage, and by developing and improving these resources. The Report addresses expected beneficial and adverse effects on fish and wildlife resources due to project alternatives, and provides recommendations for implementing the Project.

The San Luis and Delta-Mendota Water Authority is the State lead agency and Reclamation is the Federal lead agency for the Project, pursuant to the California Environmental Quality Act and the National Environmental Policy Act (NEPA), respectively. The Project purposes in Reclamation's May 2004 administrative draft Environmental Assessment/Initial Study (EA/IS) include:

- avoid the Delta-Mendota Canal (DMC) conveyance constriction that reduces the Tracy Pumping Plant's permitted 4,600 cubic feet per second (cfs) Sacramento-San Joaquin River Delta (Delta) pumping capacity to 4,200 cfs,
- help provide unmet Central Valley Project (CVP) water supply demands south of the Delta, and
- provide system flexibility should conveyance capacities be reduced either upstream on the DMC or downstream on the California Aqueduct.

Information provided by Reclamation addresses both constructing and operating the proposed project and describes terrestrial resource conservation measures. Reclamation has stated that implementing the proposed action would improve CVP capability to provide contract water deliveries south of the Delta while meeting water quality requirements and fishery pumping limitations.

This Report:

- assesses project alternatives (fish and wildlife conservation perspective),
- analyzes fish and wildlife effects (project construction and use), and
- recommends measures to avoid, minimize, and compensate for direct, indirect, and cumulative impacts

This Report incorporates the Service's findings pursuant to the Endangered Species Act of 1973 as amended, contained in a memorandum dated February 15, 2005 (Attached). In the Service's February 15, 2005, memorandum, the Service concurred that project construction is not likely to adversely affect the red-legged frog and San Joaquin kit fox, because these species are not likely

to be present in the project area and the Project's proposed avoidance measures will further avoid impacts to the species and their habitats. These avoidance measures include barrier fencing between potential frog habitat and project site and maintaining a San Joaquin kit fox migration corridor during and after construction. Furthermore, to avoid adversely affecting the delta smelt, the project would operate under parameters described in the Operational Criteria and Plan (OCAP) Biological Opinion.

SERVICE MITIGATION POLICY

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. The Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several rationale, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation planning goals range from "no loss of existing habitat value" (i.e., Resource Category 1) to "minimize loss of habitat value while minimizing loss" (i.e., Resource Category 4). The planning goal of Resource Category 3 (Table 1) is "no net loss of habitat value while minimizing loss of in-kind habitat value."

Table 1. Summary of Resource Categories, Designation Criteria and Mitigation Planning Goals under the Service Mitigation Policy.

Resource Category	Designation Criteria	Mitigation Planning Goal
1	High value for evaluation species and unique and irreplaceable	No loss of existing habitat value
2	High value for evaluation species and scarce or becoming scarce	No net loss of in-kind habitat value
3	High to medium value for evaluation species and abundant	No net loss of habitat value while minimizing loss of in-kind habitat value
4	Medium to low value for evaluation species	Minimize loss of habitat value

In addition to mitigation planning goals based on habitat values, Region 1 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality's regulations. These mitigation steps (in order of preference) are: avoidance, minimizing, rectification measures, measures to reduce or eliminate impacts over time, and compensation.

BACKGROUND

Westlands Water District (WWD) and Reclamation studied an intertie connecting the DMC and California Aqueduct in 1989. The study included a 600 cfs capacity pumping plant on the DMC with a pipeline connector to the California Aqueduct. WWD withdrew its support for the project and the project was discontinued. In the spring of 2001, the California Aqueduct's canal lining was damaged and needed repair. Because of the damage and necessary repairs, flows in the California Aqueduct were interrupted. In order to continue water deliveries during the emergency, flows were transferred from the DMC to the California Aqueduct. This was accomplished through the installation of an emergency pump station and a connector pipeline from the DMC at milepost 7.69 to the California Aqueduct. The temporary facility operated for about 30 days before its removal.

The Service has been a participant in this project since early 2002. The Service participated in the "Value Planning Study (dated September 9, 2002), attended a site visit, and submitted a Planning Aid Memorandum (dated February 3, 2003). The EA/IS incorporated the Service's recommendations regarding measures to avoid and minimize impacts to fish and wildlife resources and their habitat.

PROJECT AREA

The proposed DMC-California Aqueduct Intertie project site is located in Alameda County due west of the City of Tracy and north of the Highway 205/580 interchange between the DMC and California Aqueduct alignments (Figures 1, 2 and 3). A 500-foot-long buried pipeline would connect the two canals. A pumping plant adjacent to the DMC would provide the ability to divert up to 400 cfs from the DMC to the California Aqueduct.

PROJECT DESCRIPTION

The alternatives target avoiding a DMC conveyance design constriction that reduces the Tracy Pumping Plant capacity from the permitted 4,600 cfs to 4,200 cfs. Project use would help provide unmet CVP water supply demands south of the Delta. Reclamation evaluated a No Action alternative and five action alternatives in their NEPA document, with Alternative 2 identified as the Proposed Action. Alternatives 3, 4, and 5 would meet the project need, but were not selected due to safety, cost, and/or permit concerns. Alternative 2 proposes a pump station and a 500-foot-long pipeline connection (Intertie) from milepost 7.2 on the DMC to milepost 9.1 on the California Aqueduct. Up to 400 cfs could be transferred from the DMC to the California Aqueduct for delivery south of the Delta. The Intertie design also includes reverse operation, utilizing gravity flow, to convey up to 950 cfs from the California Aqueduct to the DMC. The reverse flow option gives the system flexibility should conveyance capacities be reduced either upstream on the DMC or downstream on the California Aqueduct.

As described by Reclamation, using the Intertie would depend on meeting all applicable export pumping restrictions for water quality and fishery protections. The final decision on operations depends on the regulatory constraints from the Water Quality Control Plan Decision 1641 which are included in CVP OCAP. Water quality, fishery, and endangered species constraints would limit Intertie use.

BIOLOGICAL RESOURCES

Aquatic and Wetland Resources

Water resources in the immediate project vicinity include the DMC and California Aqueduct. Aquatic and wetland resources potentially affected by Intertie use include the entire CVP system and the Bay/Delta environment. Based upon observations during the Service's site visit, there are no wetlands or aquatic habitats within the footprint of the proposed construction area. However, there are two wetted areas within 1,000 feet of the project site.

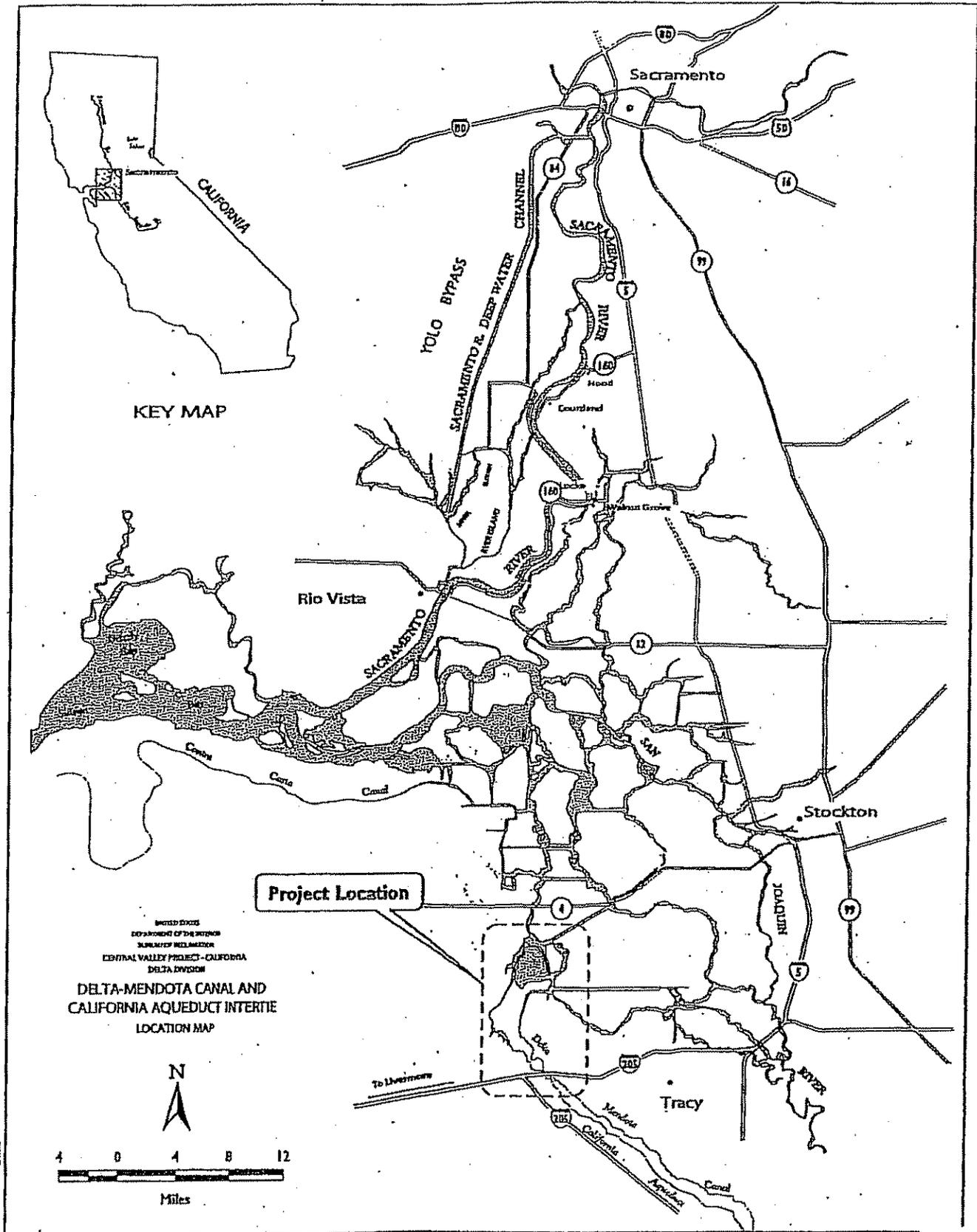


Figure 1
Regional Location Map

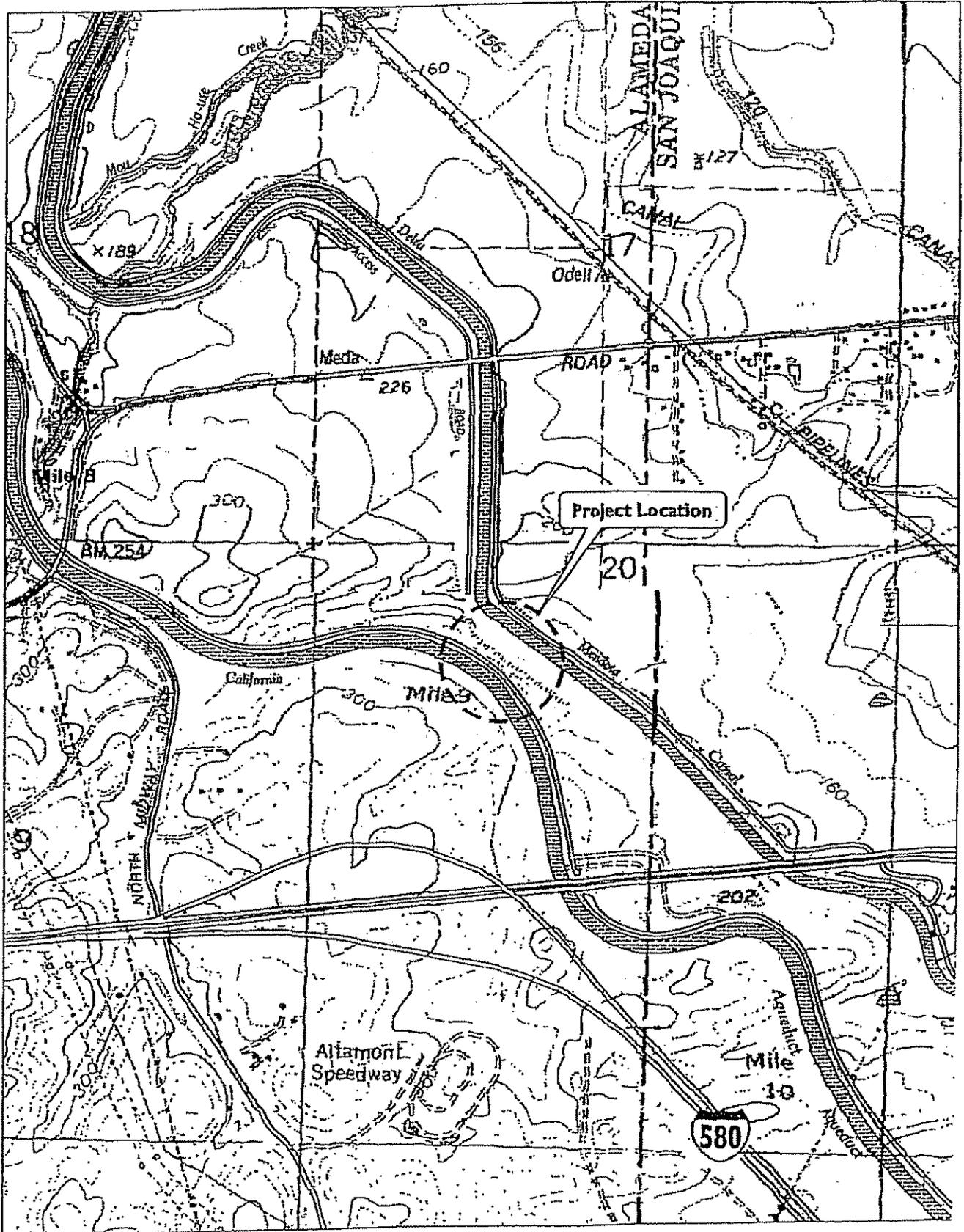


Figure 2
Detailed Location Map

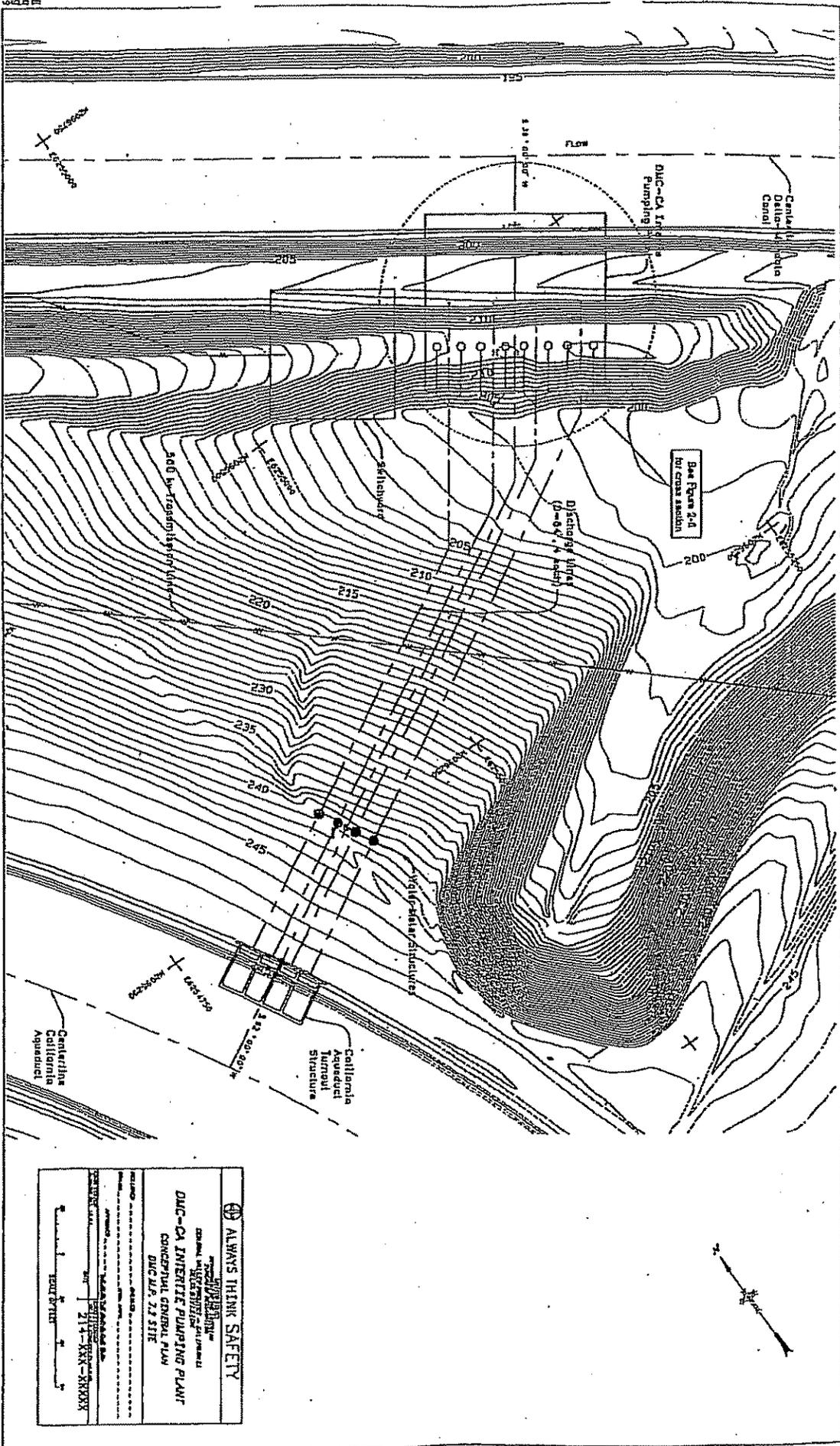


Figure 3
Proposed Action Site Plan

Terrestrial Resources

The affected terrestrial resources include about 5.0 acres of annual grassland. Although grasslands are not regionally scarce, they are being converted to urban and agricultural uses at an alarming rate. Annual grassland is a surrogate for California prairie habitat that now covers less than 1 percent of its historical acreage in the San Joaquin Valley (Moore et al. 1990). Annual grassland communities are dominated by introduced annuals such as oats (*Avena fatua*), soft chess (*Bromus mollis*), riggut brome (*Bromus rigidus*), red brome (*Bromus rubens*), barley (*Hordeum spp.*), and foxtail fescue (*Festuca megalura*).

Grasslands support numerous wildlife species including badgers (*Taxidea taxus*), coyotes (*Canis latrans*), blacktailed jackrabbits (*Lepus californicus*) and several species of small mammals. Small mammals provide an important prey base for raptors in the area, including golden eagles (*Aquila chrysaetos*), Swainson's hawks (*Buteo swainsoni*), northern harriers (*Circus cyaneus*), red-tailed hawks (*Buteo jamaicensis*), and white-tailed kites (*Elanus leucurus*). In addition, many birds, such as California horned larks (*Eremophila alpestris actia*), western burrowing owls (*Athene cunicularia hypugea*) and western meadowlarks (*Sturnella neglecta*) depend on grassland habitats for feeding, foraging, and nesting. The project area also functions as a wildlife migration corridor.

Special Status Species

San Joaquin kit fox (*Vulpes macrotis mutica*) may travel through the project site, but it is unlikely that the area would support a viable population. Red-legged frog (*Rana aurora draytonii*) may occupy the wetted areas near the project site. Biologists will survey the area for kit fox dens or activities and for red-legged frog presence in the wetted areas. CVP-wide aquatic resource evaluations for federally listed species were included in the OCAP Biological Opinion.

PROJECT EFFECTS

Aquatic and Wetland Resources

Reclamation used the CALSIM model to simulate what effect Intertie operations would have on Bay-Delta aquatic resources as compared to existing conditions. Modeling results showed that during some water year types, Intertie operations (i.e. increasing pumping at the Tracy pumping facility from 4,200 cfs to 4,600 cfs) would result in an increase in delta smelt salvage, a shift of delta smelt X2 water quality standards upstream as much as 1 kilometer, and an increase in Chinook salmon entrainment. Although the CALSIM model showed the potential for environmental effects due to Intertie operations, existing pumping constraints at the Tracy Pumping Plant would in practice limit Intertie use during periods of potential effect.

The Service believes the CALSIM results show using the Intertie without existing environmental pumping constraints would result in increased delta smelt and winter-run salmon take. As such, Intertie operations could trigger the need for additional fish protection through pumping

curtailments during some water year types. However, with environmental pumping restrictions applied to the Tracy pumps and Intertie operations, as proposed by Reclamation and OCAP, the effects would be avoided when Delta smelt and Chinook salmon take limits or water quality constraints are reached.

Terrestrial Resources

Project construction would affect about 5.0 acres of annual grassland between the DMC and California Aqueduct. The proposed pumping plant and parking area would permanently impact about 0.5 acre permanently. The remaining 4.5 acres would be used for a staging area and spreading excavated soils. The spreading area is a former disposal site used to spread spoil material from DMC and California Aqueduct construction. Following Intertie construction, the soil spreading area, equipment staging site, and buried pipeline alignment would be replanted.

Special Status Species

The San Joaquin kit fox could use or pass through the project site. Red-legged frogs could occupy wetted areas near the project site. Qualified biologists will survey for species presence prior to construction. Reclamation will provide survey results to the Service and California Department of Fish and Game to determine if additional avoidance measures are needed. Existing project design features to avoid impacts will remain as project actions.

DISCUSSION

We appreciate that Reclamation included the Service in the project's early planning stages and incorporated our recommendations as project components. We believe that incorporating terrestrial resource impact avoidance and compensation measures in the project will avoid potential adverse effects.

Through application of our Mitigation Policy, the Service determined the following mitigation planning goal applies to the proposed project, as represented by the Resource Categories defined on page 3:

- Resource Category 3 for *annual grasslands*. This determination includes grassland open space values and foraging areas provided for species such as Swainson's hawk. The mitigation goal is no net loss of habitat value while minimizing loss of in-kind habitat value.

Direct effects from constructing the pump station, diversion facilities and pipeline could be minimized through implementation of appropriate mitigation measures such as reserving the top 6 inches of soil (along with its seed bank) during trenching operations and ensuring this material is placed on top of any subsoil material during site restoration. This construction method would help ensure a viable seed source and seed bed. By incorporating restoration components into

the proposed project and its design, adverse construction effects would be limited to short-term (less than two growing seasons) and temporary effects.

OCAP Analysis

The OCAP dated July 30, 2004, included the Intertie as a functional project component. The Service's biological opinion on OCAP analyzed the effects to delta smelt due to the Intertie operations.

RECOMMENDATIONS

Proposed revegetation measures following project construction provide some minimization of affects to the San Joaquin kit fox as well as other terrestrial species present on the proposed project site. Direct permanent habitat losses would be limited to the area occupied by the pumping facility.

The Draft EA/IS analysis shows a shift upstream of X2, a delta smelt salvage increase, and a Chinook salmon take increase. Because the Intertie operation will comply with all Delta pumping restrictions, the CALSIM results do not reflect the final Intertie use periods. The Service believes that to accurately determine Intertie use periods the CALSIM model should include all Delta environmental pumping constraints as limits to Intertie use. The Service understands that the Intertie would operate only during periods when adverse environmental effects would not occur.

The Service recommends:

Terrestrial Resources

1. continue to include avoidance and compensation measures as proposed project components.
2. complete red-legged frog and San Joaquin kit fox preconstruction surveys and reinitiate section 7 consultation pursuant to the Endangered Species Act if frogs or kit fox are present in the project area [avoidance measures are described in the EA/IS and evaluated in the Service's February 15, 2005 memorandum (Attached)].

Aquatic Resources

3. continue to comply with all delta pumping constraints under OCAP.

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

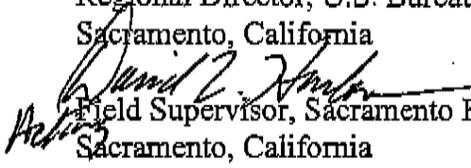
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:

NOV 18 2004

Memorandum

To: Regional Director, U.S. Bureau of Reclamation,
Sacramento, California

From: 
Field Supervisor, Sacramento Fish and Wildlife Office,
Sacramento, California

Subject: Draft Fish and Wildlife Coordination Act Report for the Delta-Mendota
Canal/California Aqueduct Intertie Project: Bureau of Reclamation and Delta-
Mendota Canal Authority

The Fish and Wildlife Service (Service) reviewed the *Draft Environmental Assessment/Initial Study for the Delta-Mendota Canal/California Intertie Project* in Alameda County, California. This memorandum transmits the Service's Draft Fish and Wildlife Coordination Act Report. We submit this Report under the authority of, and in accordance with, the provisions of section 2(b) of the Fish and Wildlife Coordination Act (48 stat. 401, as amended: 16 U.S. C. 661 et seq.). The draft report assesses potential project effects on fish and wildlife resources and provides our recommendations to reduce potential adverse effects. This report has been submitted to California Department of Fish and Game and National Oceanic and Atmospheric Administration National Marine Fisheries Service. The project's effects on federally listed species, pursuant to section 7 of the Endangered Species Act of 1973, as amended, are being addressed separately.

If you have any questions, please contact John Brooks at (916) 414-6726.

Attachment

cc:
AES, Portland, Oregon
Gary Hobgood, CDFG, Rancho Cordova, California
Brian Kinnear, NMFS, Sacramento, California

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IN AMERICA 

**United States Department of the Interior
Fish and Wildlife Service**

Draft Fish and Wildlife Coordination Act Report

Delta-Mendota Canal/California Aqueduct Intertie Project

Bureau of Reclamation and San Luis & Delta-Mendota Water Authority



**Sacramento Fish and Wildlife Office
Sacramento, California**

November 2004

EXECUTIVE SUMMARY

This document constitutes the U. S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) Report (Report) to the U.S. Bureau of Reclamation (Reclamation) for the Delta-Mendota Canal/California Aqueduct Intertie Project (Project). This Report includes recommendations to provide fish and wildlife equal consideration with other Project purposes.

The Project is intended to avoid the Delta-Mendota Canal (DMC) conveyance constriction that reduces the Tracy Pumping Plant permitted 4,600 cubic feet per second (cfs) Sacramento-San Joaquin River Delta (Delta) pumping capability to 4,200 cfs. This improved operational flexibility would help provide unmet Central Valley Project (CVP) water supply demands south of the Delta. The draft Environmental Assessment/Initial Study (EA/IS, Reclamation May 2004) describes a No Action alternative and five action alternatives with Alternative 2 identified as the Proposed Alternative. Alternatives 3, 4, and 5 would meet the Project need, but were not selected due to safety, cost, and/or permit concerns. Alternative 2 proposes a pump station and a 500-foot-long pipeline connection (Intertie) from milepost 7.2 on the DMC to milepost 9.1 on the California Aqueduct. Up to 400 cfs could transfer from the DMC to the California Aqueduct for delivery south of the Delta. The Intertie could operate in reverse, per gravity flow, to convey up to 950 cfs from the California Aqueduct to the DMC. The reverse flow option gives the system flexibility should conveyance capacities be reduced either upstream on the DMC or downstream on the California Aqueduct.

The San Luis & Delta-Mendota Water Authority is the State lead agency and Reclamation is the Federal lead agency for the Project, pursuant to the California Environmental Quality Act and the National Environmental Policy Act (NEPA), respectively. The draft EA/IS describes the proposed alternative's construction and measures to avoid and compensate for potentially adverse terrestrial resource effects. The document describes the Intertie's operations generally and notes that its operation is subject to all applicable export pumping restrictions for water quality and fishery protections. Intertie operations will follow the final CVP Operational Criteria and Plan (OCAP) and OCAP Endangered Species Act, section 7 Biological Opinion (BO). OCAP and its BO identify final Delta water quality targets and fishery restrictions that are in the Water Quality Control Plan Decision 1641 which will be used as limits to Intertie operations. The draft EA/IS analysis shows potential terrestrial and aquatic effects as "less than significant." From the terrestrial resources concern, providing for site revegetation following project construction and maintaining a wildlife migration corridor helps ensure this project's impacts to terrestrial resources are "less than significant." From the aquatic resource perspective, the EA/IS used the CALSIM model to simulate what effects using the Intertie would have on Bay-Delta resources. The results showed that during some years the use of the Intertie increased delta smelt salvage, shifted delta smelt X2 water quality up to 1 kilometer upstream, and increased Chinook salmon entrainment. Although the CALSIM model showed potential environmental effects due to simulated Intertie operations, OCAP and BO operational constraints will limit Intertie operations to meet Delta environmental requirements. However, Intertie operations may trigger fishery protections using the Environmental Water Account sooner during some water year types.

CALSIM results show Delta maximum pumping during periods when potential regulatory restrictions are likely. CALSIM demonstrates the potential effects of Intertie operations compared to existing conditions under NEPA and CEQA analysis. The Service believes that the CALSIM results are a consequence of the simulation and do not represent actual operations during regulatory pumping constraint periods. If we assume Delta restrictions will apply to Intertie use, then the effects will be avoided by not using the Intertie when additional water quality or fishery effects would occur. All existing pumping restrictions for water quality and fishery constraints that will be used to determine Intertie use.

The Service recommends:

Terrestrial Resources

- continue to include avoidance and compensation measures as Proposed Project components.
- request a "concurrence in findings" under the Endangered Species Act consultation requirement prior to issuing a "Finding of No Significant Impact."

Aquatic Resources

- follow all existing pumping constraints to determine Intertie use periods.

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INTRODUCTION

This document constitutes the U. S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) Report (Report) to the U.S. Bureau of Reclamation (Reclamation) for the Delta-Mendota Canal/California Aqueduct Intertie Project (Project). The FWCA provides that Federal agencies consult with the Service before undertaking or approving projects carried out under Federal permits and licenses that control or modify any bodies of water for any purpose, and that fish and wildlife resources receive equal consideration and be coordinated with other features of the projects. The purpose of FWCA consultation is to conserve fish and wildlife resources by preventing their loss or damage, and by developing and improving these resources. The Report addresses expected beneficial and adverse effects on fish and wildlife resources due to Project alternatives, and provides recommendations for implementing the Project.

The San Luis and Delta-Mendota Water Authority is the Project's State lead agency and Reclamation is the Federal lead agency for the Project, pursuant to the California Environmental Quality Act and the National Environmental Policy Act, respectively. The Project purposes in Reclamation's May 2004 administrative draft Environmental Assessment/Initial Study (EA/IS) include:

- avoid the Delta-Mendota Canal (DMC) conveyance constriction that reduces the Tracy Pumping Plant's permitted 4,600 cubic feet per second (cfs) Sacramento-San Joaquin River Delta (Delta) pumping capacity to 4,200 cfs.
- help provide unmet Central Valley Project (CVP) water supply demands south of the Delta.
- provide system flexibility should conveyance capacities reduce either upstream on the DMC or downstream on the California Aqueduct.

The EA/IS presented a No Action alternative and five action alternatives with Alternative 2 identified as the proposed action. The EA/IS addresses both constructing and operating the proposed action and describes terrestrial resource conservation measures. As identified in the EA/IS, implementing the proposed action would improve CVP capability to provide contract water deliveries south of the Delta while meeting water quality and fishery pumping requirements.

This Report:

- assesses project alternatives (fish and wildlife conservation perspective)
- analyzes fish and wildlife effects (project construction and use)
- recommends measures to avoid, minimize, and compensate for direct, indirect, and cumulative impacts

The Service will be forwarding the draft Report to the California Department of Fish and Game (CDFG) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries for review and comment. Comments provided by CDFG or NOAA Fisheries may be incorporated

into the Service's final Report. If the proposed action changes significantly from that described in the Project's administrative draft EA/IS, this Report will need updating.

Threatened and endangered species effects are outside the draft Report's scope. The Service will address these species in Reclamation's consultation under the Endangered Species Act of 1973, as amended (ESA). If needed, a biological opinion resulting from this consultation would describe Reclamation's responsibilities under ESA, and would be provided to Reclamation under separate cover.

SERVICE MITIGATION POLICY

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. The Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several rationale, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation planning goals range from "no loss of existing habitat value" (i.e., Resource Category 1) to "minimize loss of habitat value while minimizing loss" (i.e., Resource Category 4). The planning goal of Resource Category 3 (Table 1) is "no net loss of habitat value while minimizing loss of in-kind habitat value."

Table 1. Summary of Resource Categories, Designation Criteria and Mitigation Planning Goals under the Service Mitigation Policy.

Resource Category	Designation Criteria	Mitigation Planning Goal
1	High value for evaluation species and unique and irreplaceable	No loss of existing habitat value
2	High value for evaluation species and scarce or becoming scarce	No net loss of in-kind habitat value ¹
3	High to medium value for evaluation species and abundant	No net loss of habitat value while minimizing loss of in-kind habitat value
4	Medium to low value for evaluation species	Minimize loss of habitat value

In addition to mitigation planning goals based on habitat values, Region 1 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality's regulations. These mitigation steps (in order of preference) are: avoidance, minimizing, rectification measures, measures to reduce or eliminate impacts over time, and compensation.

BACKGROUND

Westlands Water District (WWD) and Reclamation studied an intertie connecting the DMC and California Aqueduct in 1989. The study included a 600 cfs capacity pumping plant on the DMC with a pipeline connector to the California Aqueduct. WWD withdrew its support for the project and the project was discontinued. In the spring of 2001, the California Aqueduct's canal lining was damaged and needed repair. Because of the damage and necessary repairs, flows in the California Aqueduct were interrupted. In order to continue water deliveries during the

¹ Unavoidable losses of habitat value would need to be replaced in-kind. In-kind replacement means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate to those lost.

emergency, flows were transferred from the DMC to the California Aqueduct. This was accomplished through the installation of an emergency pump station and a connector pipeline from the DMC at milepost 7.69 to the California Aqueduct. The temporary facility operated for about 30 days before its removal.

The Service has been a participant in this Project since early 2002. The Service participated in the "Value Planning Study (dated September 9, 2002), attended a site visit, and submitted a Planning Aid Memorandum (dated February 3, 2003). The EA/IS incorporated the Service's recommendations regarding measures to avoid and minimize impacts to fish and wildlife resources and their habitat.

PROJECT AREA

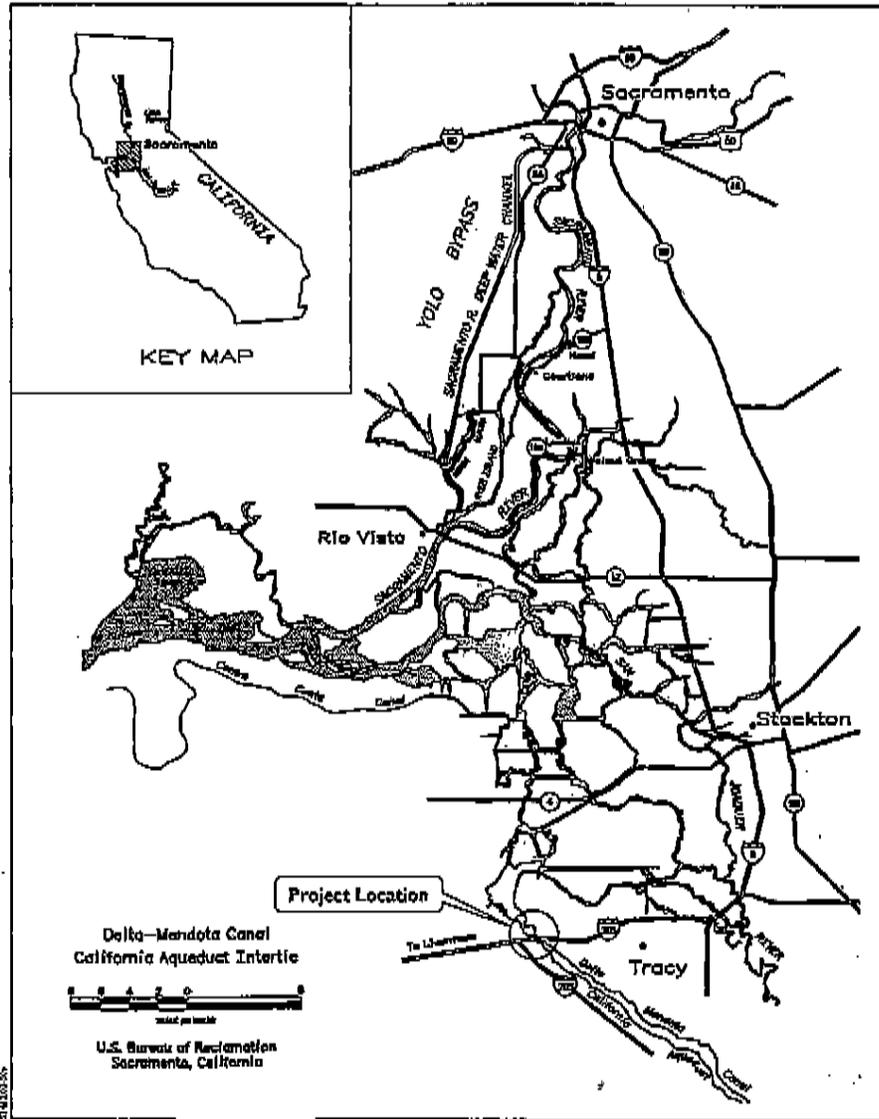
The proposed DMC-California Aqueduct Intertie project site is located in Alameda County due west of the City of Tracy and north of the Highway 205/580 interchange between the DMC and California Aqueduct alignments (Figures 1 and 2). A 500-foot-long buried pipeline would connect the two canals. A pumping plant adjacent to the DMC would provide the ability to divert up to 400 cfs from the DMC to the California Aqueduct.

PROJECT DESCRIPTION

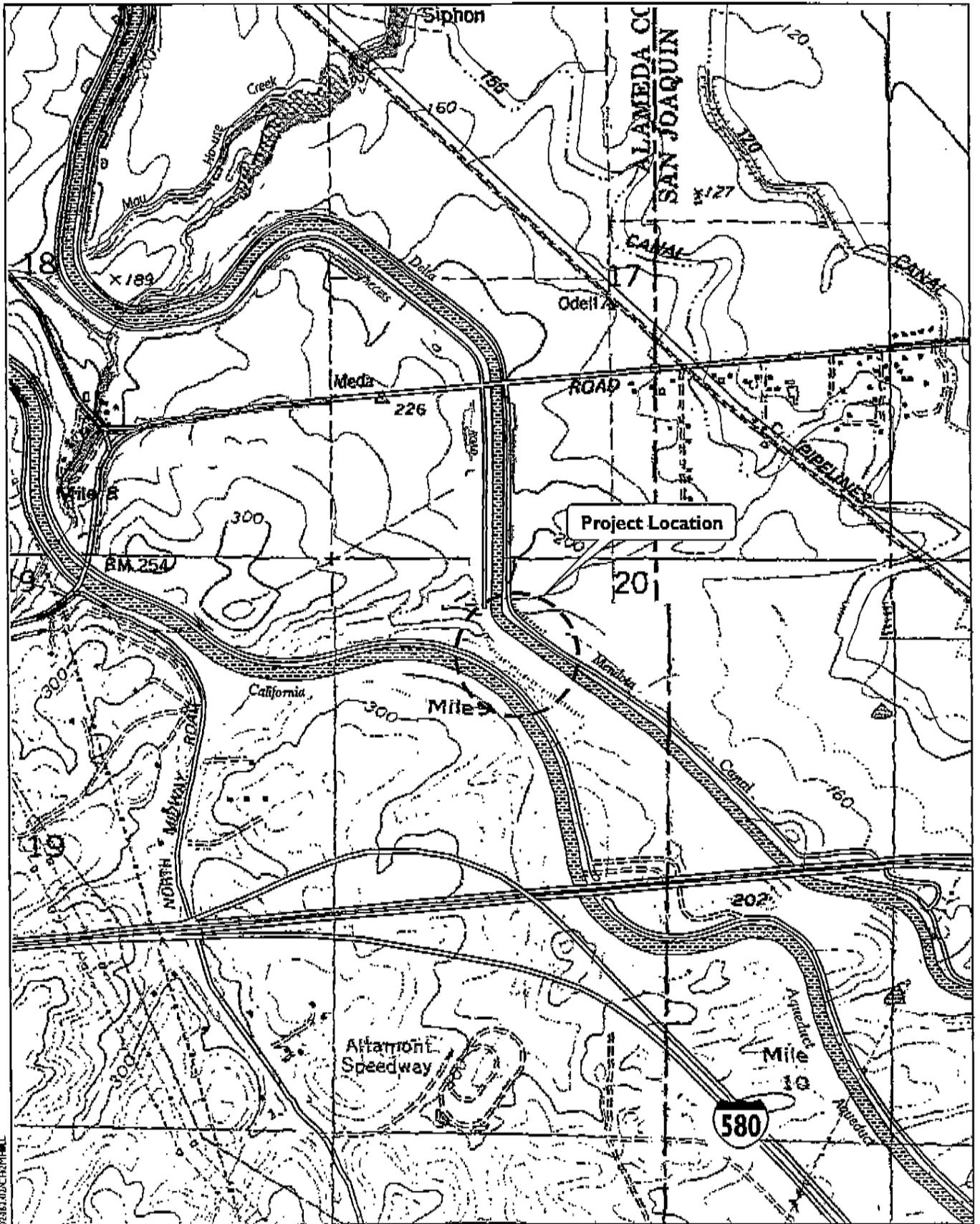
The EA/IS alternatives target avoiding a DMC conveyance design constriction that reduces the Tracy Pumping Plant capacity from the permitted 4,600 cfs to 4,200 cfs. Project use would help provide unmet CVP water supply demands south of the Delta. The EA/IS describes a No Action alternative and five action alternatives with Alternative 2 identified as the Proposed Action. Alternatives 3, 4, and 5 would meet the Project need, but were not selected due to safety, cost, and/or permit concerns. Alternative 2 proposes a pump station and a 500-foot-long pipeline connection (Intertie) from milepost 7.2 on the DMC to milepost 9.1 on the California Aqueduct. Up to 400 cfs could be transferred from the DMC to the California Aqueduct for delivery south of the Delta. The Intertie design also includes reverse operation, utilizing gravity flow, to convey up to 950 cfs from the California Aqueduct to the DMC. The reverse flow option gives the system flexibility should conveyance capacities be reduced either upstream on the DMC or downstream on the California Aqueduct.

As noted in the EA/IS, using the Intertie would depend on meeting all applicable export pumping restrictions for water quality and fishery protections. The final decision on operations depends on the regulatory constraints from the Water Quality Control Plan Decision 1641 which are

Figure 1



Regional Location Map



Detailed Location Map

included in CVP Operational Criteria and Plan (OCAP). Water quality, fishery, and endangered species constraints will determine Intertie use.

BIOLOGICAL RESOURCES

Aquatic and Wetland Resources

Water resources in the immediate project vicinity include the DMC and California Aqueduct. Aquatic and wetland resources potentially affected by Intertie use include the entire CVP system and the Bay/Delta environment. Based upon observations during the Service's site visit, there are no wetlands or aquatic habitats within the footprint of the proposed construction area.

Terrestrial Resources

The affected terrestrial resources include about 5.0 acres of annual grassland. Although grasslands are not regionally scarce, they are being converted to urban uses and agricultural at an alarming rate. Annual grassland is a surrogate for California prairie habitat that now covers less than 1 percent of its historical acreage in the San Joaquin Valley (Moore et. al. 1990). Annual grassland plant communities are dominated by introduced annuals such as oats (*Avena fatua*), soft chess (*Bromus mollis*), ripgut brome (*Bromus rigidus*), red brome (*Bromus rubens*), barley (*Hordeum spp.*), and foxtail fescue (*Festuca megalura*).

Grasslands support numerous wildlife species including badgers (*Taxidea taxus*), coyotes (*Canis latrans*), blacktailed jackrabbits (*Lepus californicus*) and several species of small mammals. Small mammals provide an important prey base for raptors in the area, including golden eagles (*Aquila chrysaetos*), Swainson's hawks (*Buteo swainsoni*), northern harriers (*Circus cyaneus*), red-tailed hawks (*Buteo jamaicensis*), and white-tailed kites (*Elanus leucurus*). In addition, many birds, such as California horned larks (*Eremophila alpestris actia*), western burrowing owls (*Athene cunicularia hypugea*) and western meadowlarks (*Sturnella neglecta*) depend on grassland habitats for feeding, foraging, and nesting. The project area also functions as a wildlife migration corridor.

Special Status Species

San Joaquin kit fox (*Vulpes macrotis mutica*) may travel through the project site, but it is unlikely that the area would support a viable population. The project proponents will survey the site for kit fox dens or activities. CVP-wide aquatic resource evaluations for federally listed species were included in the OCAP consultation process.

PROJECT EFFECTS

Aquatic and Wetland Resources

The EA/IS used the CALSIM model to simulate what effects using the Intertie would have on Bay-Delta aquatic resources. The results showed that during some years Intertie use increased delta smelt salvage, shifted delta smelt X2 water quality up to 1 kilometer upstream, and increased Chinook salmon entrainment. Although the CALSIM model showed potential environmental effects due to simulated Intertie operations, existing pumping constraints will limit Intertie use during potential effect periods. Still Intertie operations may trigger fish protections using the Environmental Water Account sooner during some water year types. The Service believes the CALSIM results show increased Delta pumping without applying restrictions prior to identifying Intertie use. If we assume Delta restrictions would apply to Intertie use, then the effects would be avoided by not using the Intertie when negative effects could occur.

Terrestrial Resources

Project construction would affect about 5.0 acres of annual grassland between the DMC and California Aqueduct. The proposed pumping plant and parking area would cover about 0.5 acre permanently. The remaining 4.5 acres would be used for a staging area and spreading excavated soils. The spreading area is former disposal site used for soils from DMC and California Aqueduct construction. Following Intertie construction the soil spreading area, equipment staging site, and buried pipeline alignment would be revegetated.

Special Status Species

The Project site has the potential to support both the San Joaquin kit fox and California tiger salamander (*Ambystoma californiense*). Both of these species have been recorded in close proximity to the proposed action. The proposed project has incorporated construction measures which could be expected to reduce impacts to these species, however residual affects impacts may still impact these federally listed species.

DISCUSSION

We appreciate that Reclamation included the Service in the Project's early planning stages and incorporated our recommendations as project components. We believe that incorporating terrestrial resource impact avoidance and compensation measures in the project should minimize potential adverse effects. The Service believes that when the Delta water quality constraints and Delta outflow requirements included in the OCAP project description are applied to the project, the Intertie's use period will be clearer.

Through application of our Mitigation Policy, the Service determined the following mitigation planning goal applies to the proposed Project, as represented by the Resource Categories defined on page 3:

- Resource Category 3 for *annual grasslands*. This determination includes grassland open space values and foraging areas provided for species such as Swainson's hawks. The mitigation goal is no net loss of habitat value while minimizing loss of in-kind habitat value.

Direct effects from constructing the pump station, diversion facilities and pipeline could be minimized through implementation of appropriate mitigation measures such as reserving the top 6 inches of soil (along with its seed bank) during trenching operations and ensuring this material is placed on top of any subsoil material during site restoration. This simple construction method would help ensure a viable seed source and seed bed. By incorporating restoration components into the proposed Project and its design, adverse construction effects would be limited to short-term (less than two growing seasons) and temporary effects.

OCAP Analysis

The updated OCAP CALSIM modeling simulation included the Intertie operations and water supplies. Pumping restrictions include Environmental Water Account and B(2) actions to avoid negative environmental effects. The Service's Biological Opinion (BO) has been completed for OCAP. The OCAP simulation and the BO determined that CVP and State Water Project operations, when Water Quality Control Plan Decision 1641 requirements and Environmental Water Account are used, would not jeopardize delta smelt.

RECOMMENDATIONS

Proposed revegetation measures following Project construction provides for some minimization of affects to the San Joaquin kit fox and California tiger salamander as well as other terrestrial species present on the proposed project site. Direct permanent habitat losses would be limited to the area occupied by pumping facility.

The Draft EA/IS analysis shows a shift upstream of X2, a delta smelt salvage increase, and a Chinook salmon take increase. Because the Intertie operation will comply with all Delta pumping restrictions, the CALSIM results do not reflect the final Intertie use periods. The Service believes that to accurately determine Intertie use periods the CALSIM model should include all Delta environmental pumping constraints as limits to Intertie use. The Service understands that the Intertie would operate only during periods when adverse environmental effects would not occur.

The Service recommends:

Terrestrial Resources

- continue to include avoidance and compensation measures as proposed Project components.
- Reclamation should initiate consultation pursuant to section 7(a) of the Endangered Species Act, as amended (16 U.S.C. 1531 et seq.).

Aquatic Resources

- apply existing pumping constraints before deciding final Intertie use.

REFERENCES

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