



United States Department of the Interior

OFFICE OF THE SECRETARY

Washington, D.C. 20240

October 18, 1993

Honorable G. Edward Dickey
Acting Assistant Secretary (Civil Works)
Department of the Army
Washington, D.C. 20310

Dear Dr. Dickey:

In accordance with the provisions of the section 404(q) Memorandum of Agreement (MOA) between the Department of the Interior and the Department of the Army, as revised on December 21, 1992, I am requesting your review of the U.S. Army Corps of Engineers, Sacramento District Engineer's decision to issue a section 404 permit for the project described in Public Notice No. 199200719. This permit would authorize the applicant, Sacramento Area Flood Control Agency (SAFCA), to discharge fill in wetlands to construct, raise, and widen certain levees for the purpose of flood control. The proposed project will result in the direct loss of approximately 10 acres of wetlands including vernal pools, riparian woodlands, perennial marsh, and seasonal wetlands, and the indirect loss of up to 379 acres of additional wetlands and approximately 33,000 acres of agricultural lands that provide high quality habitat for wildlife.

On September 10, 1993, the District Engineer notified the U.S. Fish and Wildlife Service (Service) of his intent to proceed with permit issuance. After a thorough review of background information on the project, I have determined that this case warrants elevation in accordance with the criteria found in Part IV of the revised section 404(q) MOA (Elevation of Individual Permit Decisions). That is, I have concluded that the proposed project will have substantial and unacceptable adverse effects on aquatic resources of national importance.

I am concerned that the District Engineer's proposed permit decision will allow filling of wetlands within the Natomas Basin and lead to substantial adverse indirect impacts on significant waterfowl and shorebird populations through the inducement of development activities in the Basin. The Department of the Interior, acting through the Service, is vested with the authority and obligation to protect, conserve and enhance the Nation's fish and wildlife resources. These matters fall within our jurisdiction under the Fish and Wildlife Coordination Act, section 404(m) of the Clean Water Act, the Fish and Wildlife Act of 1956, and the Migratory Bird Treaty Act as amended to implement international treaties regarding the conservation of migratory bird populations.

I have concluded that the proposed project will have a substantial and unacceptable adverse impact on waterfowl and shorebird populations in the Central Valley, each of which I have determined to constitute aquatic resources of national importance. Because of the loss of over 3.5 million acres of natural wetlands in the Central Valley, waterfowl and shorebirds make significant use of agricultural areas, particularly rice lands. Sixty percent of the ducks, geese and swans of the Pacific Flyway, and millions of shorebirds, utilize agricultural lands and the remaining 280,000 acres of natural wetlands within the Central Valley.

Numerous Federal and State laws have been enacted, and international treaties ratified, to protect waterfowl and shorebird populations and their habitat within the United States. The North American Waterfowl Management Plan is a joint U.S.-Canada-Mexico agreement that provides a blueprint for international cooperation to increase waterfowl and shorebird populations in North America. These various laws and programs underscore the national and international importance assigned to protection of migratory birds. The American Basin, which includes the Natomas Basin, has been identified by the Service as the highest priority for wintering waterfowl protection in the Central Valley.

While I recognize fully the need to protect the existing residents of the Natomas Basin from flooding, I have serious concerns about continued development within an area that will remain subject to periodic flooding. Proposed development plans within the Natomas Basin would add over 170,000 people and over \$13 billion in new buildings and their contents. Facilitating urbanization over such a large floodplain does not appear to be consistent with Executive Order 11988. However, should the Army continue to find the proposed project in the public interest, I recommend that a less environmentally damaging alternative be adopted. Less damaging alternatives include a compartment levee around the existing development, or project construction with incorporation of mitigation for both direct and indirect impacts to wildlife resources.

Until October 1992, the proposed project was a component of the American River Watershed Investigation (ARWI) conducted by the Sacramento District (District) to provide flood protection to Sacramento and the Natomas Basin. The Environmental Impact Statement for the ARWI identified a total of 379 acres of wetlands and 33,000 acres of agricultural lands that would be lost within the Natomas Basin from direct and indirect impacts of

the proposed Natomas component of the ARWI. The District conducted an extensive analysis of these impacts and concluded that implementation of the Natomas portion of the Federal ARWI project "would allow growth to occur in areas of the floodplain where high base flood elevations would otherwise make urban development infeasible."

However, in the Decision Document for the proposed permit decision, the District states that, "[t]o conduct an evaluation for the secondary and indirect effects...would call for an evaluation of activities that are too speculative and remote in nature to be reasonably foreseeable at this time." It is the Department's opinion that: 1) the District has been inconsistent in the evaluation of indirect, growth induced impacts related to the Natomas Area Flood Control Improvement Project; 2) the indirect impacts of the project are reasonably foreseeable; and 3) appropriate and practicable mitigation should be required for the project's indirect impacts on wildlife resources.

Finally, I believe that the significant adverse indirect, growth induced impacts associated with this project have not been adequately addressed within the District's Environmental Assessment. I recommend that the District provide a more comprehensive environmental document addressing the indirect, growth-induced impacts of the proposed project.

If, following careful evaluation of the proposed project's indirect impacts, the District finds the proposal to be the least environmentally damaging practicable alternative that fulfills the project purpose, any permit issued should include the following as a special condition:

A comprehensive basin-wide floodplain management plan shall be developed by the Corps, Service, SAFCA, local governmental agencies, and other entities as appropriate. This plan must ensure adequate mitigation (through impact avoidance, minimization, and compensation) for wildlife losses associated with indirect project impacts. These mitigation measures shall be comparable to measures identified by the Service for the American River Watershed Investigation. The plan must be approved by the Corps, in consultation with the Fish and Wildlife Service, prior to commencement of any work authorized by the permit.

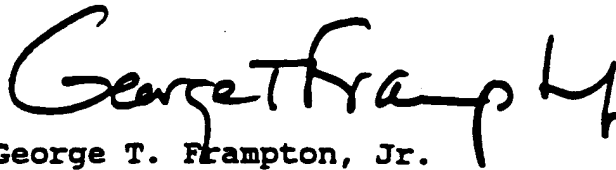
The permittee's current mitigation and monitoring plan should also be modified and implemented in accordance with recommendations previously provided by the Fish and Wildlife Service to ensure that the direct impacts of the proposed project are adequately mitigated.

Honorable G. Edward Dickey

4

Enclosed is additional information addressing these and other issues relating to the proposed permit decision. Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "George T. Frampton, Jr." The signature is written in a cursive style with a large, prominent "G" and a long, sweeping tail on the "y".

George T. Frampton, Jr.
Assistant Secretary for Fish
and Wildlife and Parks

Enclosure

NATOMAS AREA FLOOD CONTROL IMPROVEMENT PROJECT

PROJECT DESCRIPTION

Sacramento Area Flood Control Agency (SAFCA) has applied for a Department of the Army permit pursuant to section 404 of the Clean Water Act to discharge fill in wetlands for a flood control improvement plan within the Natomas Basin in Sacramento and Sutter Counties, California. While the Sacramento District of the U.S. Army Corps of Engineers (District) considers this project to be a "local project", it was originally analyzed as part of the American River Watershed Investigation (ARWI) and Environmental Impact Statement (EIS) proposed by the District and the California State Reclamation Board.

The proposed project involves the construction, raising and widening of a number of levees located along the Natomas East Main Drain Canal, Dry Creek-Robla Creek, Arcade Creek, and Natomas Cross Canal, and the construction of a pump station located on the Natomas East Main Drain Canal. Permit issuance as proposed by the District will result in the direct discharge of fill into approximately 10 acres of wetlands and is projected to indirectly impact an additional 379 acres of wetlands, including vernal pools, permanent marsh, and riparian woodlands. Most of the 55,000 acres that would be removed from the 100-year floodplain are agricultural lands dominated by rice culture. Local city and county planning documents have identified 33,000 acres of this floodplain for urban and commercial development pending their removal from the 100-year floodplain. The proposed project will encourage and promote development within the Natomas Basin, substantially increasing the number of people and amount of property exposed to flooding. Projected annual flood damage costs are projected to double if the proposed project is constructed and development of the basin proceeds according to existing land use projections presented in SAFCA's 1993 Draft Environmental Impact Report (DEIR).

The Department of Interior has determined that waterfowl and shorebird populations which inhabit the project site are aquatic resources of national importance and will be adversely impacted to a substantial and unacceptable degree by the proposed project. The District has not analyzed, or proposed compensatory mitigation for, the indirect impacts of the project which will result in substantial and unacceptable impacts to waterfowl and shorebird populations. In addition, the proposed compensation plan for direct wetland losses is insufficient to fully mitigate for direct project impacts.

AQUATIC RESOURCES OF NATIONAL IMPORTANCE

Regional Resources

The Central Valley provides habitat for 29 species of waterfowl and is the exclusive wintering area for the endangered Aleutian Canada goose and the tule white-fronted goose. It also is the primary wintering area for the cackling Canada goose, the Wrangel Island and western populations of the lesser snow goose, the Ross' goose, and the pintail duck. Due to the loss of natural wetlands, waterfowl and shorebirds make significant use of agricultural lands, particularly rice lands, within the Central Valley. As recently as the 1970's, California's Central Valley supported a population of 5 million ducks, geese, and swans. Today, populations of waterfowl within the Central Valley are closer to 2 million. Sixty percent of the Pacific Flyway's ducks, geese, swans, and millions of shorebirds, utilize the remaining 280,000 acres of wetlands in the Central Valley.

Wetland habitat losses within the Central Valley have been very severe, with an estimated 91 percent of the original wetlands lost, mainly through agricultural conversion, urban development and flood control activities. Riparian woodlands once found along drainages throughout most of the Central Valley have been destroyed or degraded due to land conversions, water diversions, and over-grazing. It is estimated that today less than 5 percent of the Central Valley's historic riparian woodlands remain.

The loss of wetland habitat in the Central Valley has reduced the carrying capacity of the Valley and significantly impacted waterfowl and shorebird populations. This reduction in the carrying capacity results in smaller populations due to starvation, disease, and reduced reproductive output. Nowhere in North America do so many birds crowd onto such a small area, increasing the likelihood of severe disease outbreaks. As many as 65,000 birds have died of botulism in the Sacramento Valley in one year. Fowl cholera is also an problem in the Sacramento Valley and Sacramento - San Joaquin River Delta region, with 14,000 ducks, 9,600 geese, 5,000 swans, and 10,500 coots collected and destroyed during the winter of 1975-76.

Numerous Federal and State laws have been enacted, and international treaties ratified, to protect waterfowl and shorebird populations and their habitat within the United States. These laws include the Migratory Bird Treaty Act, Pittman-Robertson Act, Migratory Bird Hunting and Conservation Stamp Act, North American Wetlands Conservation Act and California State Duck Stamp Act of 1970. The North American Waterfowl Management Plan was developed in 1986 by the governments of the United States, Canada, and Mexico, in partnership with numerous organizations, corporations, and individuals in an effort to increase and sustain waterfowl and shorebird populations

throughout North America. Within the Central Valley, the North American Waterfowl Management Plan and the Central Valley Joint Venture programs propose the creation of 120,000 acres of new wetlands and enhancement of 750,000 acres of wetlands on public and private lands within the Central Valley. These laws and programs emphasize the national and international importance given to these waterfowl and shorebird populations.

Site-Specific Resources

The revised DEIR for the proposed project states, "[t]he Natomas Basin and north Sacramento are included in an expansive floodplain which occupies portions of Sacramento and Sutter Counties." Historically, floods occurred almost annually at the confluence of the American and Sacramento Rivers. This region (which includes all of the Natomas area) lies at the terminus of the American Basin. Except for approximately 7,000 acres within the Natomas Basin (which is part of the American Basin), the American Basin is primarily in agricultural use.

Agricultural lands, consisting primarily of rice lands, along with interspersed wetlands in the Natomas area, provide highly valuable wintering habitat for waterfowl of the Pacific Flyway. California Department of Fish and Game's mid-winter waterfowl inventory data for 1989 revealed over 16,000 ducks, geese and swans using the Natomas Basin. Included among the waterfowl surveyed were northern pintails, cackling Canada geese and white-fronted geese. These three species of waterfowl have experienced significant population declines in the Pacific Flyway in recent years.

The American Basin on average supports over 38,000 ducks and geese during the mid- to late-winter months (Miller et al. 1989). The Natomas Basin provides critical feeding grounds and post-breeding habitat for waterfowl and shorebird populations. Rice lands in southern Sutter County also support one of the largest nesting waterfowl populations in the Sacramento Valley. The most common nesting species are mallards and cinnamon teal. California Department of Fish and Game and the California Waterfowl Association found 296 breeding mallards in the Natomas Cross Canal and 262 breeding mallards in the Natomas East Main Drain during the spring of 1990. Breeding bird surveys conducted by California Department of Fish and Game and the California Waterfowl Association in the Natomas Basin found 61.8 and 73.8 breeding mallards per square mile, during 1990 and 1991 respectively. Duck nesting studies conducted in set-aside rice lands yielded an average of 0.74 duck nests per acre or 470 nests per square mile (CDFG 1993).

The Natomas area provides important habitat for many shorebird and wading bird species, including the American avocet, killdeer,

long-billed curlew, sandhill crane, great blue heron, common egret, and white-faced ibis. Shorebirds and wading bird species feed on various species of invertebrates, crustaceans, small fish, and amphibians present within rice ponds and adjacent ditches and canals. The area also supports numerous raptors, including wintering bald eagles, wintering and nesting Swainson's hawks, northern harriers, and black-shouldered kites. These species feed on waterfowl, shorebirds and a variety of small mammals present along the margins of the rice lands.

The high wildlife values and threat of habitat loss in the Natomas area have made the American Basin the highest priority area for wintering waterfowl protection in the Central Valley (Central Valley Habitat Joint Venture 1990). Wildlife resources in the area are further described as highly significant both locally and nationally in the American River Watershed Investigation Fish and Wildlife Coordination Act Report (November 1991). Moreover, in the Service's Proposed North Central Valley Wildlife Management Area plan, the American Basin was identified as the highest priority for acquisition and easements (Fish and Wildlife Service 1991).

Riparian woodland communities are rare within the Natomas Basin and restricted to narrow strips along the Sacramento River, levees, and canals such as the Natomas East Main Drain. These riparian areas are used by a variety of wildlife species and provide the most diverse wildlife habitat type within the Natomas Basin. These communities support abundant aquatic and terrestrial invertebrates which in turn are preyed upon by larger vertebrate species such as shorebirds, waterfowl, amphibians and reptiles. Insectivorous birds, including yellow-rumped warblers, white-breasted nuthatches, acorn woodpeckers, and ash-throated flycatchers make extensive use of these riparian woodland communities. Riparian areas along the North Natomas East Main Drain also support species such as the belted kingfisher, Cooper's hawk, red-shouldered hawk, and Swainson's hawk (a state threatened species). The direct loss of riparian and adjacent upland habitat due to construction activities will likely result in a loss of eggs, young, or adult waterfowl, shorebirds, and other migratory birds protected by the Migratory Bird Treaty Act.

Vernal pools that would be impacted by the proposed project may support the vernal pool fairy shrimp (*Branchinecta lynchi*), California linderiella (*Linderiella occidentalis*), and vernal pool tadpole shrimp (*Lepidurus packardi*). These species have been proposed for listing as endangered under the Endangered Species Act. These pool complexes may also support the California tiger salamander (*Ambystoma californiense*) which the Department has been petitioned to list as endangered. California Department of Fish and Game has identified the vernal pool complex which would be impacted by the project as a Significant Natural Area.

SUBSTANTIAL AND UNACCEPTABLE IMPACTS

The American River Watershed Investigation EIR/EIS prepared by the District, identified a total of 379 acres of wetlands and 33,000 acres of agricultural lands that would be lost within the Natomas Basin from direct and indirect impacts of the proposed Natomas Levee Improvement Project. The DEIR prepared by Sacramento Area Flood Control Agency for the proposed local project fails to specify the acreage of wetland and upland losses due to indirect impacts, but states that the resultant "urbanization would cause the loss of significant amounts of agricultural land...", and that endangered species, wetlands, and fish and wildlife habitats would be adversely affected (DEIR Chap. 7.0, page 7.0-2). The revised DEIR recognizes that significant acreage will be developed as a result of the proposed action, but defers any mitigation to local agencies or individual developers (revised DEIR chap. 7.0, page 7.0-1).

Waterfowl using rice lands in winter feed on insects and waste grain remaining after rice harvest. Availability of food of adequate quantity and quality can dramatically affect reproductive success. Development of the area, would displace wintering birds and adversely affect their condition and reproductive potential prior to their spring migration to northern nesting grounds. Ducks and geese generally arrive at their northern breeding grounds with nearly all of the body reserves necessary to lay and incubate a clutch of eggs (Krapu 1981). Inadequate reserves result in smaller clutches or delayed breeding while reserves are built up. In either case, reduced production can occur. With approximately 400 pounds per acre of waste rice available to waterfowl, the loss of 31,000 acres of rice lands will result in a total loss of over 12 million pounds of rice, and an unknown amount of insects and crustaceans. The loss of a minimum of 31,000 acres of high quality habitat for waterfowl and shorebirds will have a significant negative effect on the populations of waterfowl and shorebirds within the Pacific Flyway.

In addition to inducing the loss of approximately 31,000 acres of rice lands in the near-term, the project could contribute to a much larger loss of rice lands in the future. Between 1970 and the mid-1980's as much as 640,000 acres were in rice production within the Central Valley. According to the California Rice Industry Association, approximately 450,000 acres were planted in rice in 1993 (Herkert, Calif. Rice Industry Association, pers. comm.). The California Rice Industry Association estimates that a minimum of 325,000 acres of rice land must remain in production for rice to remain an economically viable industry within the Central Valley (Herkert, Calif. Rice Industry Association, pers. comm.). The loss of 31,000 acres, a reduction of 7 percent of cultivated rice lands within the Central Valley, represents a

significant impact to the rice industry. The loss of the Natomas Basin also represents a 25 percent loss of the rice industry's available acreage "cushion" separating an economically viable industry and potential collapse of rice production in the Central Valley. Unless all rice lands reverted to wetlands, which is highly unlikely, the collapse of the rice industry within the Central Valley would have devastating effects on waterfowl and shorebird populations.

ALTERNATIVES TO THE PROPOSED ACTION

Floodplain development carries with it not only the associated loss of fish and wildlife habitat, but also the risks involved with locating people in such areas. Recent events in the Midwest have tragically demonstrated the losses that may occur to human life and property located in floodplains. Executive Order (EO) 11988 states that "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains...". Facilitating development within the Natomas floodplain would not appear to be consistent with EO 11988. Proposed development plans would add over 170,000 people and over \$13 billion worth of new buildings and their contents in the Natomas Basin. The District's American River Watershed Investigation reported that, "[t]his development would significantly increase the number of people and the amount of property exposed to flooding and would increase the losses produced by an uncontrolled event." In addition, annual flood damage costs are projected to double if the proposed project is constructed and development of the basin proceeds according to existing land use projections (SAFCA, DEIR 1993).

Therefore, the Department believes it would be prudent to avoid any Federal action that would promote floodplain development. However, should the Army continue to find that the proposed project is in the public interest, the Department recommends that a less damaging alternative be adopted to minimize wildlife losses. Such alternatives include the construction of a compartment levee in Natomas to protect existing development, or the modification of the proposed action to include complete avoidance of, or full compensation for, indirect impacts.

The compartment levee alternative avoids many of the significant indirect and growth-inducing impacts associated with the proposed action while protecting currently developed areas within the South Natomas area. Most of the existing agricultural lands would remain in production; impacts to waterfowl, shorebirds, and other wildlife would be minimized. This alternative would meet the intent of the Department of Defense Appropriations Act of 1992, which called for construction of the Natomas Basin levee

improvement features of the American River Watershed Investigation, "provided that such construction does not encourage the development of deep floodplains" (Department of Defense Appropriations Act 1992, section 9159).

A second option is the construction of the proposed project but with full avoidance of indirect impacts, or full compensation for such impacts. This alternative would require that Federal, county, and city governmental agencies, in cooperation with private development interests, fashion a floodplain management program that would curtail or fully compensate for the planned developments within the Natomas Basin. Mitigation measures such as those identified in the American River Watershed Investigation Fish and Wildlife Coordination Act Report would need to be implemented.

SCOPE OF ANALYSIS

The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA) state that environmental assessments must address the environmental impacts of the proposed action, as well as the means to mitigate adverse environmental impacts (40 CFR 1502.16). The Regulations define environmental impacts to include both direct and indirect effects. Indirect effects, according to the Regulations, "...are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in land use, ... and related effects on air and water and other natural systems, including ecosystems."

The District views the "permit area" as the area of direct physical impact resulting from project construction. In the Notice of Intent to Issue a permit for the project, the Corps states that indirect effects of the project need not be addressed because they would require an evaluation of activities that are too speculative and remote in nature to be reasonably foreseeable at this time. Thus, the Corps has elected to address only the direct physical impacts of the permitted activity on fish and wildlife resources, and has narrowed the scope of its analysis essentially to the footprint of the project features.

The Department does not agree that future development induced by the project is speculative and not reasonably foreseeable. Various city and county development plans, as well as Sacramento Area Flood Control Agency's EIR for the proposed project, identify anticipated development in the region and recognize a significant effect on the biotic resources of the Natomas Basin from such growth induced activity. These plans include, the North Natomas Specific Plan (1993), Sacramento County General

Plan Update and Environmental Impact Report (1993), the Sacramento Metropolitan Airport/Vicinity Special Planning Area General Plan Amendment and Rezone (1992), South Sutter County General Plan Amendment (1991), and the Sutter Bay Village Specific Plan and Golf Course (1992).

Because of flooding experienced in 1986 and Federal Emergency Management Agency (FEMA) restrictions, local governments have adopted measures to ensure that additional people and property are not placed at risk due to flooding within the Natomas Basin. These measures will remain in effect until a minimum 100-year level of flood protection (FEMA standards) can be provided to the area. Under current development plans, development within the Natomas area is precluded until the Revised Local Project (Natomas Levee Improvement Project) is constructed (North Natomas Community Plan, 1993; Sutter Bay Village and Golf Course Specific Plan, 1992). Sutter Bay's specific plan states that, "[u]ltimate approval of the proposed project (Sutter Bay) is dependent on the eventual approval of a regional flood control project, which is being proposed by the Sacramento Area Flood Control Agency, the Army Corps of Engineers, and the State Reclamation Board."

In addition, the Corps included the entire 55,000 acres within the Natomas Basin in its scope of analysis for the American River Watershed Investigation EIS. In the EIS, the Corps assumed that growth in the Natomas Basin would occur as anticipated under the adopted general plans of the City of Sacramento, Sacramento County, and Sutter County, which in aggregate, delineate land use within the Natomas Basin. Project cost/benefit calculations were based on future development in the Basin as well. The EIS evaluated effects on fish and wildlife resources based on land use changes that would result from implementing the Natomas portion of the ARWI, and concluded that the project "would result in a significant loss of wetland habitat" from modification of drainage canals and the conversion of rice lands to urban uses.

The environmental assessment (EA) essentially disregards indirect, growth induced project impacts to fish and wildlife. However, the EA includes evaluations of benefits that would accrue as a result of the project (outside the "permit area") and the development it will induce. For instance, the EA concludes that the project would protect agricultural land from flooding and thus reduce the frequency at which it is taken out of production and that facilitated development in the Natomas Basin could have a less severe effect on local air quality than development that could occur elsewhere if the Basin was continued to be constrained by flood consideration.

The Department concludes that there is a clear link between the proposed project and future development activities, and that future development within the Natomas Basin is reasonably foreseeable. This link between the project and future

development was acknowledged by the Corps in the American River Watershed Investigation EIS by stating that "... the selected plan would permit growth in Natomas and the Pocket and Meadowview sections of the City by removing flood-related constraints."

The District's Notice of Intent also maintains that insufficient federal control and responsibility exists for future development in the project area to justify analysis of the indirect impacts associated with the proposed project. The Department disagrees with this assessment. Sufficient federal control and responsibility can be demonstrated if other Federal agencies are required to take actions under the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act and other environmental laws and Executive Orders, or through other Federal actions. Examples of existing and future Federal involvement in the project area include:

- 1) potential issuance of future section 404 permits to fill wetlands or drain the interior of the Natomas Basin as identified in the North Natomas Community Drainage System (1989), Sacramento Metropolitan Airport Expansion, and Sutter Bay development project;
- 2) consultation with the Department as required by the Endangered Species Act (section 7 or 10) with the District, or private land owners for most of the proposed development within the Natomas Basin should the giant garter snake become listed;
- 3) adjacent and interdependent Army Corps of Engineers projects such as Magpie Creek Flood Control Project, Sacramento River Flood Control Systems Evaluation - Phase I, and West Sacramento Flood Control Project;
- 4) the continuation of studies and environmental documents by the District, U.S. Bureau of Reclamation and local agencies to determine and study various alternatives to further reduce the risk of flooding within the greater Sacramento and Natomas Basin as part of the American River Watershed Investigation;
- 5) Congressional approval for significant Federal funding and District construction of the project, as identified in the Department of Defense 1992 appropriations bill;
- 6) development of new flood elevation maps for the Natomas Basin and redesignation of flood risk by the Federal Emergency Management Agency;
- 7) reevaluation by the U.S. Department of Transportation of interchange and a controlled access points along Interstate 5 and 80 as a result of increased development in the region; and

8) the use of Federal Gasoline Tax monies to develop a new interchange at Highway 70/99 and Riego Road to service existing and proposed development in the Basins.

As a result of restricting the scope of analysis to the area physically affected by the direct impacts of the project only, the environmental assessment prepared for the permit action does not adequately address indirect, growth induced impacts of the project. Given the significant effects on the human environment that will occur as a result of the proposed project and associated growth induced impacts, an environmental impact statement would appear to be the most appropriate environmental document for this project. At a minimum, a revised environmental assessment should be prepared that evaluates growth induced impacts within the entire Natomas Basin.

ADEQUACY OF PROPOSED MITIGATION

Indirect Impacts

Current mitigation plans do not include any mitigation for the indirect, growth induced impacts of the project. As previously discussed, NEPA requires an evaluation of indirect effects and the means to mitigate adverse environmental impacts. Similarly, the substantive decision criteria for section 404 permit issuance require consideration of indirect impacts, and appropriate and practicable mitigation for those impacts. The Department's mitigation recommendations for the indirect impacts of the proposed project are based on the Service's HEP analysis as described in the Fish and Wildlife Coordination Act Report for the American River Watershed Investigation; Natomas Area, Volume IV (1991). Mitigation measures proposed by the Department in the American River Watershed Investigation include:

1. Development of 17,650 acres as a wetland/upland complex in the Natomas Basin. (Additional development as proposed by Sutter and Sacramento Counties since the completion of the Fish and Wildlife Coordination Act Report for the American River Watershed Investigation would require additional mitigation acreage). Potential mitigation areas that would meet management needs are shown on Map 1; or
2. A total of 34,000 acres (10,000 acres in Sutter County and 12,000 acres in Sacramento County for waterfowl and other wildlife impacts and an additional 12,000 acres in a one-mile wide strip along the Sacramento River from Sankey Road to the mouth of the American River for impacts to the Swainson's hawk). Most of these lands would remain in agricultural use, but placed under a conservation easement for fish and wildlife management. While these properties would remain in agricultural production, crops of low value

to wildlife would be gradually phased out and converted to high value crops for wildlife or converted to wetland/uplands complexes. Potential mitigation areas that would meet management needs are shown on Map 2.

Direct Impacts

The mitigation plan proposed by the applicant does not provide adequate compensation or monitoring for direct project impacts to candidate and proposed species that may occur within the vernal pools. The Service has strongly encouraged the District to address potential impacts to these species by requiring that adequate mitigation and monitoring be conducted to reduce the likelihood of long-term impacts to these species. Due to the uncertainties of vernal pool re-creation, and to increase the potential for successful mitigation of fairy shrimp impacts, the Service recommended a number of specific measures designed to minimize the risk of failure of the re-created vernal pools and to ensure the genetic viability of the species which inhabit them. These recommended measures were provided by the Service to the District Engineer in an August 20, 1993, letter. The Department continues to maintain that avoidance of vernal pools is the only proven strategy for preserving their physical and biological integrity.

The Service also recommended further mitigation and monitoring for the loss of riparian woodland habitat. The Service is concerned that the soils on the selected mitigation site may be unsuitable for the proposed riparian woodland mitigation. The presence of an indurated hardpan approximately 25 inches thick topped by a claypan at 10 to 18 inches, makes tree establishment unlikely. The Service recommends that a qualified soil scientist, hydrologist, or restoration ecologist investigate the site to determine its suitability for use as a riparian forest mitigation site.

ENDANGERED SPECIES ACT COORDINATION

The final rule to list the giant garter snake (*Thamnophis gigas*) as a threatened species was recently submitted to the Federal Register. Endemic to the valley floor of the Sacramento and San Joaquin Valleys of California, the highly aquatic giant garter snake inhabits sloughs, ponds, small lakes, low gradient streams, and other waterways, such as irrigation and drainage canals, where it feeds primarily on small fishes and frogs. The giant garter snake has experienced significant population declines in the Central Valley as a result of habitat loss caused by numerous factors, including urbanization, agricultural, and flood control activities.

The American Basin supports the largest giant garter snake

population within its range. The Department recommends that the District initiate formal consultation on the proposed project's direct and indirect impacts pursuant to section 7 of the Endangered Species Act.

RECOMMENDATIONS

If, following careful evaluation of the proposed project's indirect impacts, the District finds the proposal to be the least environmentally damaging practicable alternative that fulfills the project purpose, any permit issued should include the following as a special condition:

A comprehensive basin-wide floodplain management plan shall be developed between the Corps, Service, SAFCA, local governmental agencies, and other entities as appropriate. This plan must ensure adequate mitigation (through impact avoidance, minimization, and compensation) for wildlife losses associated with indirect project impacts. These mitigation measures shall be comparable to measures identified by the Service for the American River Watershed Investigation. The plan must be approved by the Corps, in consultation with the Fish and Wildlife Service, prior to commencement of any work authorized by the permit.

The permittee's current mitigation and monitoring plan should also be modified and implemented in accordance with recommendations previously provided by the Fish and Wildlife Service to ensure that the direct impacts of the proposed project are adequately mitigated.

LITERATURE CITED

- California Department of Fish and Game. 1992. 1991 Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants. The Resources Agency. pp 193
- _____. 1993. Letter to District Engineer, U.S. Army Corps of Engineers. Comments on Public Notice Number 199200719. April 19, 1993.
- American River Watershed Investigation California. 1991. Feasibility Report and Environmental Impact Statement/Environmental Impact Report. U.S. Army Corps of Engineers, Sacramento District and The Reclamation Board, State of California. December 1991.
- Central Valley Habitat Joint Venture. 1990. Central Valley Habitat Joint Venture Implementation Plan, A Component of the North American Waterfowl Management Plan. Sacramento, CA 102 pp.
- Fish and Wildlife Service. 1991a. American River Watershed Investigation, Fish and Wildlife Coordination Act Report. FWS, Region 1, Portland, OR November 1991.
- Fish and Wildlife Service. 1991b. Land Protection Plan for Proposed Land Acquisition to Establish the North Central Valley Wildlife Management Area, A Component of the North American Waterfowl Management Plan's Central Valley Habitat Joint Venture. FWS, Region 1, Portland, OR 11 pp.
- Herkert, Robert E., Manager, Field Services, California Rice Industry Association. Telephone Conversation, September 10, 1993.
- Johnson, Huey D. 1981. California Riparian Systems: A Renewable Resource Awaiting Renewal. In: California Riparian Systems: Ecology, Conservation, and Productive Management, 1984. University of California Press. pp 384-389.
- Krapu, G.L. 1981. The Role of Nutrient Reserves in Mallard Reproduction. Auk 98:29-38.
- Miller, M.R., D.E. Sharp, D.S. Gilmer and W.R. Mulvaney. 1989. Rice Available to Waterfowl in Harvested Fields in the Sacramento Valley, California. Calif. Fish and Game 75(2):113-123.