

Land Use and Resource Management Plan for the Primary Zone of the Delta
Adopted February 23, 1995

TABLE OF CONTENTS**Introduction****Regional Location Maps - Delta Atlas****Findings, Policies, and Recommendations**

1. Environment
2. Utilities and Infrastructure
3. Land Use
4. Agriculture
5. Water
6. Recreation and Access
7. Levees
8. Marine Patrol, Boater Education, and Safety Programs

Implementation**Map of the Delta Primary and Secondary Zones****Appendix A - Delta Protection Act of 1992****Appendix B - List of Members of Delta Protection Commission**

INTRODUCTION

The Primary Zone of the Sacramento-San Joaquin Delta includes approximately 500,000 acres of waterways, levees and farmed lands extending over portions of five counties: Solano, Yolo, Sacramento, San Joaquin and Contra Costa. The rich peat soil in the central Delta and the mineral soils in the higher elevations support a strong agricultural economy. The Delta lands have access to the fresh waters of the 1,000 miles of rivers and sloughs lacing the region. These waterways provide habitat for many aquatic species and the uplands provide year-round and seasonal habitat for amphibians, reptiles, mammals, and birds, including several rare and endangered species. The area is extremely popular for water-oriented recreation including fishing, boating, and waterskiing.

Recognizing the threats to the Primary Zone of the Delta from potential urban and suburban encroachment and the need to protect the area for agriculture, wildlife habitat, and recreation uses, the California Legislature passed and the Governor signed into law on September 23, 1992, the Delta Protection Act of 1992 (SB 1866). The Act directs the Delta Protection Commission to prepare a comprehensive resource management plan for land uses within the Primary Zone of the Delta (Plan).

The planning conducted by the Delta Protection Commission involved preparation and public review of nine background reports: Environment; Utilities and Infrastructure; Land Use and Development; Water; Levees; Agriculture; Recreation and Access; Marine Patrol, Boater Education, and Safety Programs; and Implementation. These reports provided the information base for the Plan findings and policies, as well as allowing opportunities for public review and comment through circulation and public hearings before the Commission.

The goals of the Plan as set out in the Act are to "protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment, including but not limited to agriculture, wildlife habitat, and recreational activities; assure orderly, balanced conservation and development of Delta land resources and improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety." Also pursuant to the Act, to the extent that any of the requirements specified in this Land Use and Resource Management Plan are in conflict, nothing in this Plan shall deny the right of the landowner to continue the agricultural use of the land.

The Plan consists of three sections. Part I, the Introduction, describes the planning program and the Plan objectives. Part II provides Findings and Policies, and Recommendations for more than one local government, or for State agency or special district action. Part III describes the program for implementing the Plan. Part IV is a map which shows the boundary of the Primary and Secondary Zones of the Delta.

Each element includes findings, policies, and recommendations. Findings are derived from the information in the background reports. The findings form the framework of data from which the policies and recommendations are derived. Policies are the directions for action the local governments must embrace and support through amendments to the General Plans, if necessary. The policies are intended to provide harmony Deltawide for local government actions. Recommendations are additional, optional directions for action for local government, for non-profit groups, State agencies, and others. It is important to note, however, that in the implementation of both the policies and recommendations of this plan, the Act specifically prohibits the exercise of the power of eminent domain unless requested by the landowner.

ENVIRONMENT

The Delta is a unique geographic area in the State of California, a low-lying region of rich mineral and peat soils, composed of islands created largely by humans, as they diked and drained the prehistoric marshes of the region.

The lush wetland habitats surrounded by riparian woodlands have been replaced by agricultural lands, both cultivated and irrigated croplands, and irrigated and unirrigated pasture lands. Remnants of natural habitat are located largely along some sloughs and rivers and on small channel islands. Pockets of wooded or wetland habitat exist on some islands.

The aquatic habitats were historically brackish and home to both resident and migratory fish. Modern aquatic habitats are affected by flows released from upstream dams, seasonal drainage from agricultural lands, and year-round drainage from sources outside the Primary Zone, such as sewage treatment plants. Several large, freshwater lakes are located on the eastern edge of the Delta, providing year-round wetland habitat.

At all levels of the ecosystem, native plants and animals are now competing with exotics. Of particular concern are the Asian clam, which is competing for phytoplankton at the bottom of the food chain, and popular introduced game fish, such as the Striped bass, which are declining in numbers and in health. The native winter-run Chinook salmon and Delta smelt are designated endangered and threatened, respectively.

Large mammals, such as bear and elk, which historically lived in and around the Delta have been eliminated. Aquatic mammals including beaver and otter still remain. Both year-round and migratory birds have adapted to the agricultural practices in the Delta, particularly the small grain fields which are flooded in fall and winter months. Migratory birds include ducks, geese, swans, cranes, and shorebirds. Hawks and eagles forage in the Delta fields; Swainson's Hawk is designated "threatened"

by the Department of Fish and Game.

The geology of the region created this unique "delta". Sediments trapped inland of the rocky neck of the Carquinez Straits resulted in the creation of the 1,100 square mile area known as "the Delta". The Delta exists in a State known for earthquake faults; the probability of seismic activity remains constant. A zone of buried thrust faults is located along the western edge of the Delta.

The peat soils of the central and western Delta have oxidized in great part due to drainage. Losses of soil due primarily to such oxidation have resulted in subsidence of land surfaces of up to 20 feet. Original peat soil depths varied substantially from area to area and even within a given island. Current studies show the only effective way to stop subsidence is to reflood the peat soils. Subsidence has slowed to about one-third of an inch a year in many areas. About 60% of the lands in the Delta are designated prime agricultural lands.

The low elevations of the Delta, exacerbated by subsidence, result in a constant threat of flooding. Twice in each approximately 25 hour period the tides raise and lower the elevation of the Sacramento River about three feet. The threat of flooding is generally associated with periods of high winter rainfall and periods of rapid spring snow melt in the watersheds draining into the Delta. The most critical conditions occur when upstream dams are full and the resulting high rates of river flow combine with high tides.

Goal: Preserve and protect the natural resources of the Delta, including soils. Promote protection of remnants of riparian habitat. Promote seasonal flooding and agriculture practices on agricultural lands to maximize wildlife use of the hundreds of thousands of acres of lands in the Delta. Promote levee maintenance and rehabilitation to preserve the land areas and channel configurations in the Delta.

Environment Findings:

F-1. The physical environment which existed prior to 1850 has been permanently and irretrievably modified through levee construction, drainage of wetlands, and introduction of agriculture.

F-2. Human activities in the central Delta have contributed to subsidence of much of the area. Some areas are now more than 20 feet below sea level.

F-3. Most of the soils in the central Delta are designated "prime" and of statewide value for agriculture.

F-4. The peat soils have subsided largely through oxidation; other activities resulting in subsidence include cycles of drain and flood, wind, and burning.

F-5. While over 95% of all wetlands in the Delta have been lost, the Delta area is used by 10% of the wintering waterfowl traveling within the Pacific Flyway.

F-6. Valuable habitat for many birds and mammals is included on linear riparian corridors along levees and small isolated areas located on the islands and small channel islands, and Delta wetlands. Agricultural lands also provide high quality wildlife habitat and foraging areas, depending on agricultural practices. The levees keep flooding from occurring, which would destroy habitat. Levees are manmade structures which have no initial habitat value when constructed. The value of wildlife and habitat on the levees is dependent on the maintenance of the levees.

F-7. The value to wildlife of levee habitat and habitat within the levees is lessened by on-going human impacts such as levee maintenance, farm practices, human habitation, and recreational use of the levees and waterways. Activities such as water transport and boating use have eroded Delta channel islands, berms, and levees destroying habitat areas. Without levee maintenance, the habitat

on the levees and within the islands will be lost.

F-8. The native population of fish and other aquatic species has been modified by hydromodification including water diversion, etc., through introduction of exotic species and other causes. Numbers of both native and of some introduced fish have dropped dramatically since the late 1960's; numbers have dropped so low that winter-run Chinook salmon and Delta smelt have been listed as endangered and threatened, respectively. However, the population of some introduced species of fish and other introduced aquatic species throughout the aquatic food chain has substantially increased.

F-9. There is no Delta regionwide management plan for wildlife resources.

F-10. Most of the Delta is located in the 100-year flood plain. While the levee system is constantly being maintained and upgraded, many Delta islands have been temporarily flooded; at least four have remained flooded. Permanent flooding, such as seen on Frank's Tract, would adversely impact utility infrastructure, residential and recreational facilities, farmlands, wildlife habitat, transportation, commerce, and fisheries. Evaporation from flooded islands consumes substantially more water than is needed to farm those islands.

F-11. The Primary Zone, with its large open expanses of farmland, mosaic of small grain crop residues and shallow flooded fields, permitting wildlife to feed and rest, provides extremely high quality wildlife habitat.

F-12. Seasonal flooding in fall and winter has traditionally been carried out to serve several purposes: weed control, leaching of soils, control of oxidation of peat soils, provision of seasonal habitat, and hunting.

F-13. Delta channel islands and levees serve as habitat for several burrowing species, including beaver and muskrat. Some species have created burrows large enough to endanger levee stability.

Environment Policies:

P-1. The priority land use of areas of prime soil shall be agriculture. If commercial agriculture is no longer feasible due to subsidence or lack of adequate water supply or water quality, land uses which protect other beneficial uses of Delta resources, and which would not adversely affect agriculture on surrounding lands, or viability or cost of levee maintenance, may be permitted. If temporarily taken out of agriculture production due to lack of adequate water supply or water quality, the land shall remain reinstatable to agricultural production for the future.

P-2. Agricultural and land management practices shall minimize subsidence of peat soils. Local governments shall support study of agricultural methods which minimize subsidence and assist in educating landowners and managers as to the value of utilizing these methods.

P-3. Lands managed primarily for wildlife habitat shall be managed to provide several inter-related habitats. Delta-wide habitat needs should be addressed in development of any wildlife habitat plan. Appropriate programs, such as "Coordinated Resource Management and Planning" and "Natural Community Conservation Planning" should ensure full participation by local government and property owner representatives.

Environment Recommendations:

R-1. Seasonal flooding should be carried out in a manner so as to minimize mosquito production. Deltawide guidelines outlining "best management practices" should be prepared and distributed to land managers.

R-2. Wildlife habitat on the islands should be of adequate size and configuration to provide significant wildlife habitat for birds, small mammals, and other Delta wildlife.

R-3. Undeveloped channel islands provide unique opportunities for permanent wildlife habitat in the Primary Zone. A strategy should be developed to encourage permanent protection and management of the channel islands. Protection may include: acquisition, conservation easements, or memoranda of understanding. Management may include: protection from erosion, controlling human access, or habitat management, such as planting native plants and removing exotic plants. Some larger, reclaimed channel islands may be suitable for mixed uses, such as recreation and habitat. Any development on channel islands must ensure long-term protection of the wildlife habitat.

R-4. Feasible steps to protect and enhance aquatic habitat should be implemented as may be determined by resource agencies consistent with balancing other beneficial uses of Delta resources.

R-5. Publicly-owned land should incorporate, to the maximum extent feasible, suitable and appropriate wildlife protection, restoration and enhancement as part of a Delta-wide plan for habitat management.

R-6. Management of suitable agricultural lands to maximize habitat values for migratory birds and other wildlife should be encouraged. Appropriate incentives, such as conservation easements, should be provided by non-profits or other entities to protect this seasonal habitat through donation or through purchase.

R-7. Lands currently managed for wildlife habitat, such as private duck clubs or publicly-owned wildlife areas, should be preserved and protected, particularly from destruction from inundation.

UTILITIES AND INFRASTRUCTURE

Due to the Delta's location between major population areas, its unique resources, especially water and natural gas, and its flat terrain and general lack of development, the Delta has high value as a utility and transportation corridor.

Utilities located in the Delta include: radio and television transmission towers; electrical transmission lines including Pacific Gas and Electric, and Western Area Power Administration lines; natural gas pipelines, serving local gas fields and regional pipelines; petroleum transportation pipelines; and water transportation canals and pipelines transporting water from the Delta to regional users and transporting water through the Delta to the Bay Area. Buried pipelines within rights of way appear to generally have lesser impacts on wildlife movements or land uses than aboveground facilities. The aboveground facilities, such as pipelines, canals, and transmission lines do impact wildlife movements, reduce availability of valuable habitat, and result in direct loss of birds killed by striking transmission lines.

Local governments regulate the utilities that serve Delta residents and visitors including potable water, sewage disposal, and solid waste disposal. Most potable water is obtained from groundwater through local wells. Most wastewater from homes and businesses is treated in on-site septic tanks. Some of the larger communities and developments have self-contained wastewater treatment facilities. Communities outside the Primary Zone do and propose to continue to release treated wastewater into Delta waterways, onto constructed wetlands, or onto agricultural lands.

Natural gas remains an important natural resource extracted from the Delta. PG&E maintains a large underground storage site under McDonald Island.

Transportation systems traversing around and through the Delta include several railroads and freeways, state highways, and county roads. Many bridges connect island developments; five islands are served only by ferry.

Two major ports lie north and east of the Primary Zone, the Ports of Sacramento and Stockton, respectively. The shipping channels were constructed the late 1920's (Stockton) and 1950's (Sacramento). Several million tons of diversified products are shipped through the Delta each year.

Airports in the Delta are limited to small facilities serving individual land-owners and agriculture-serving businesses.

Goal: Protect the Delta from excessive construction of utilities and infrastructure facilities, including those that support uses and development outside the Delta. Where construction of new utility and infrastructure facilities is appropriate, ensure the impacts of such new construction on the integrity of levees, wildlife, and agriculture are minimized.

Utilities and Infrastructure Findings:

F-1. The flat, largely unpopulated Delta is a valuable site for regional utility corridors, such as transmission lines and pipelines.

F-2. High voltage transmission lines have disrupted wildlife use patterns and resulted in the loss of birds due to collision with those lines.

F-3. Isolated residential structures are served by independent potable water and sewage disposal systems.

F-4. Delta communities are served by small community water systems and small community sewage disposal systems.

F-5. Large communities on the edge of the Delta have located sewage treatment ponds at the edge of the Delta and release treated wastewater into Delta sloughs and rivers, and onto nearby agricultural lands.

F-6. Most solid waste generated in the Delta is disposed of at facilities outside the area. Recycling is not readily available for Delta residents; in the Delta, agricultural waste is disposed of on site.

F-7. Productive natural gas fields are located in the Delta. A large underground gas storage facility is located at McDonald Island.

F-8. Surface transportation in the Delta serves the agricultural operations, transporting products out of the Delta to markets, and allows import of supplies and equipment. Other users of the Delta transportation network include regional trucking, regional commuters, recreational visitors, and local traffic within the Delta. Many existing Delta roads are historic, narrow, and nonconforming to present design standards. Drivers need to be aware of hazards and unique challenges that these roads pose.

F-9. While some railroad rights-of-way within the Delta have been sold, many traveling through the Delta remain intact. Regional rail traffic, between the Bay Area and the Central Valley passes through the Delta. Spur lines create shorter links between processing facilities and the Ports. Rail traffic, both freight and passenger, is increasing as intermodal transportation planning develops. Several new or refurbished stations are planned in the Delta region.

F-10. Bridges and ferries are key links for surface transportation in the Delta. Bridges impact vessel

traffic on the waterways; some bridges rarely open requiring boats to travel alternate waterways. Some bridges open regularly, impacting surface traffic and creating possible delays in emergency response. The few remaining ferries are expensive to maintain and operate, and may be affected by cuts in State and local government budgets.

F-11. Commercial shipping is an historic use of the Delta waterways. The two commercial shipping channels: Sacramento Deep Water Channel and Stockton Deep Water Ship Channel, provide important transportation for movement of agricultural products from the Delta and other areas to faraway markets.

F-12. Air transportation in the Delta is limited to small airstrips serving private property owners, small agriculture related businesses, and other limited use.

Utilities and Infrastructure Policies:

P-1. Impacts associated with construction of transmission lines and utilities can be mitigated by locating new construction in existing utility or transportation corridors, or along property lines, and by minimizing construction impacts. Before new transmission lines are constructed, the utility should determine if an existing line has available capacity. To minimize impacts on agricultural practices, utility lines shall follow edges of fields. Pipelines in utility corridors or existing rights-of-way shall be buried to avoid adverse impacts to terrestrial wildlife. Pipelines crossing agricultural areas shall be buried deep enough to avoid conflicts with normal agricultural or construction activities. Utilities shall be designed and constructed to minimize any detrimental effect on levee integrity or maintenance.

P-2. New houses built in the Delta agricultural areas shall continue to be served by independent potable water and wastewater treatment facilities. Uses which attract a substantial number of people to one area, including any expansions to the Delta communities, recreational facilities, or businesses, shall provide adequate infrastructure improvements or pay to expand existing facilities, and not overburden the existing limited community resources. New or expanded construction of wastewater disposal systems shall ensure highest feasible standards are met. Independent treatment facilities shall be monitored to ensure no cumulative adverse impact to groundwater supplies.

P-3. New sewage treatment facilities (including storage ponds) and areas for disposal of sewage effluent and sewage sludge shall not be located within the Delta Primary Zone. The Rio Vista project, as described in the adopted Final Environmental Impact Report for such project, and the Ironhouse Sanitary District use of Jersey Island for disposal of treated wastewater and biosolids are exempt from this policy. (Amended 1/28/97)

P-4. High groundwater tables and subsiding soil make the Delta an inappropriate location for solid waste disposal. Generation of waste shall be minimized through recycling programs for metals, glass, paper, cardboard, and organic materials. Recycling depots for these material shall be located in central locations to serve Delta residents, visitors, and businesses.

P-5. Surface transportation in the Delta can be dangerous and congested. Roads within the Delta shall be maintained to serve the existing agricultural uses and supporting commercial uses, recreational users, and Delta residents. Where possible, commuter traffic and through traffic should be directed to surrounding highways and freeways, or minimized through programs which promote carpools, buses, or trains.

P-6. Air transportation in the Delta shall be allowed to continue to serve Delta residents and agriculture-related businesses. Due to subsidence, transmission lines, high winds, fog, and high raptor and waterfowl use, the Primary Zone is not an appropriate location for new or expanded general aviation airports.

P-7. Operation of draw and swing bridges shall balance needs of land and water traffic. Commercial vessels and emergency road traffic shall have right-of-way over other traffic.

Utilities and Infrastructure Recommendations:

R-1. Railroad rights-of-way in and around the Delta should be protected as transportation corridors. Regional rail links between the Central Valley and the Bay Area should be developed for commuters as alternative transportation routes, thus removing traffic from Delta roadways.

R-2. Bridges provide critical links within the Delta. While bridges must be maintained to provide safe access across waterways, bridges should not be constructed so as to invite roadway expansion. Ferries should be maintained by public entities as long as they are economically viable. Public-private partnerships should be explored to offset costs of maintenance and operation. Hours of service may be curtailed and/or fees charged to non-residents.

R-3. The existing commercial shipping channels should be maintained, and if determined to be environmentally and economically appropriate, deepened to meet modern shipping needs. Expanded use of shallow draft vessels, such as barges, should be explored as a transportation alternative to highways. Material excavated from the shipping channels should, if feasible, be used for maintenance of Delta levees or for wildlife habitat enhancement within the Delta and for other uses within the Delta.

R-4. Materials dredged from Delta channels should, if feasible, be stored at upland sites for reuse for levee maintenance and repair, and other feasible uses in the Delta. Impacts to wildlife caused by storage of dredged materials should be mitigated.

R-5. CalTrans should designate, through appropriate signage, those roadways which are used to transport agricultural equipment and other slow-moving vehicles.

R-6. Potable water supplies to serve Delta uses can be obtained from surface waters or groundwater. Development of groundwater wells should be monitored to ensure wells do not result in overdraft and possible intrusion of saline water into groundwater supplies.

R-7. Natural gas production will continue to be an important use of Delta resources. Structures needed for gas extraction should be consolidated to minimize displacement of agriculture and wildlife habitat. In compliance with existing laws, facilities no longer needed for gas extraction should be completely removed to allow restoration of agriculture or wildlife habitat uses. Counties should ensure that there are appropriate buffers between gas processing and storage facilities and residential and recreational uses to protect lives and property.

R-8. Utilities should be required to contribute a fair share to the cost of levee maintenance and other local services and should not result in a reduction of assessable acreage for reclamation districts.

LAND USE

The Delta settlement pattern was historically, and remains to this day, closely associated with the rivers, sloughs, and waterways, and the agricultural land use. One incorporated city, Isleton and portions of Stockton, Rio Vista, and Pittsburg, exist in the Secondary Zone. Unincorporated communities lie along the Sacramento River in the Primary Zone including: Clarksburg, Courtland, Hood, Locke, Walnut Grove, and Ryde. The towns served as social and service centers for the

surrounding farms and historically served as shipping sites for products.

In the Primary Zone, County General Plans and zoning ordinances all designate the Primary Zone primarily for agriculture. Within the agricultural zones, recreation, wildlife habitat, and nature preserves can be approved. The minimum parcel sizes vary within the five counties ranging from five acre minimum parcels (Contra Costa and Yolo Counties) to 160 acre minimum parcels (Solano County: non-irrigated and Yolo County: non-irrigated and under Williamson Act contract). Some Counties link minimum parcel size to soil type (Sacramento County) and some to "farmable unit" (Solano County). These variations show the difficulty in developing a universal definition or minimum parcel size to protect lands designated Agriculture in the General Plans.

This Plan seeks to retain the existing land use patterns in the Primary Zone--extensive agriculture lands serviced by the existing communities. While agricultural support facilities can be constructed in the agricultural areas, other future growth and development should be directed to the sites in the existing communities which were so designated as of January 1, 1992.

Significant acreages in the Primary Zone have been purchased in the last few years by state, federal, and non-profit agencies for enhancement and management as wildlife habitat. In addition, the Ports of Sacramento and Stockton own several thousand acres along their shipping channels. The State Department of Parks and Recreation owns several hundred acres of land and several thousand more of water for recreational purposes. The Department of Water Resources (DWR) has announced its intention to acquire both Sherman and Twitchell Islands, totalling 13,500 acres to protect the integrity of the levee system, develop wildlife habitat, and to control soil oxidation and subsidence. In addition, DWR owns Clifton Court Forebay and other lands associated with the State Water Project. Federal entities own land on the tip of Grand Island and near the Delta Cross Channel.

Changes in land use from agriculture are proposed on several islands covering several thousand acres. Both Twitchell and Sherman Island may be converted to year-round wildlife habitat. Stone Lakes Wildlife Refuge will acquire some lands for conversion to wildlife habitat. Medford Island is now a mitigation bank, managed for both agriculture and wildlife habitat. Prospect Island may be converted to wildlife habitat. The proposed Delta Wetlands project would convert four islands totalling 20,000 acres into two reservoirs and two wildlife habitat areas. A 3,000 acre area within the Yolo Bypass will be converted from agriculture to year-round wetland. Other projects propose Primary Zone lands be acquired for upland disposal of treated wastewater and biosolids, and for mitigation of environmental impacts.

Goals: Protect the unique character and qualities of the Primary Zone by preserving the cultural heritage and strong agricultural base of the Primary Zone. Direct new residential, commercial, and industrial development within the existing communities as currently designated and where appropriate services are available.

Land Use Findings:

F-1. Delta history is closely linked with the rich agricultural heritage of the State. The patterns of settlement reflect the history of immigration into the State in the late 19th century. The rural communities of the Delta reflect the diverse heritage of the Delta, and the independence of country living.

F-2. The legal Delta covers 738,239 acres. The Primary Zone is 487,625 acres with about 50,000 acres of water area. Approximate percentages are: Contra Costa: 8%; Yolo: 10%; Solano: 16%; Sacramento: 28%; and San Joaquin: 38%.

F-3. The five Delta counties--Solano, Yolo, Sacramento, San Joaquin, and Contra Costa--designate Primary Zone lands for agriculture or special Delta resources in their respective General Plans.

F-4. The zoning codes allow a variety of uses in the Primary Zone: agriculture; outdoor recreation; wildlife habitat; public facilities; and limited areas for commercial, industrial, and rural residential development. The parcel sizes specified in the General Plans and zoning codes range from 160 to 5, with most of the Primary Zone in the 80 to 20 acre minimum parcel sizes.

F-5. The majority of the lands in the Delta area, before they were reclaimed, consisted of tidelands, submerged lands, and swamp and overflowed lands passed by the United States to California in 1850. The State asserts that some lands now believed to be in private ownership remain subject to a public trust easement, held by the State for the benefit of all its people, and further, that some such lands never passed from State ownership. This uncertainty in some private titles may be resolved on a case-by-case basis by agreement or litigation between the landowner and the State. Unresolved uncertainties in title related to State assertions of public trust ownership may create a cloud on private title which limits the ability of private owners to finance their operations. Adequate financing of private enterprises is essential to maintenance of the economy of the area which in turn supports the essential long-term maintenance of Delta resources and levees. A resource management plan designating land uses for private and public trust lands and addressing public trust purposes and needs, including agricultural land uses, wildlife and aquatic habitat, recreation, open space, water-related commerce, and navigation, would minimize the need for resolving title disputes through boundary settlements or litigation.

F-6. The two Delta ports, Sacramento and Stockton, own hundreds of acres of land along their respective shipping channels. Some of these lands are used for dredge materials disposal; some have been or will be used for mitigation sites to create new wetland habitat to offset losses suffered in construction or operation of the shipping channels.

F-7. The East Bay Regional Parks District (EBRPD), which serves as the park department for Contra Costa County, has been active in preparing recreation and access plans along the Delta waterfront in Contra Costa County. EBRPD manages much of Browns Island, a habitat area, and is planning to acquire land in the Big Break/Jersey Island area to provide recreation facilities.

F-8. The State Department of Parks and Recreation has operated Brannan Island since 1954. The Department also owns Frank's Tract (flooded); Delta Meadows, a scenic waterway near Locke popular with boaters; and over 1,000 acres in the proposed Stone Lakes Wildlife Refuge. Ownership in Primary Zone: approx 5,000 total acres/1,500 land.

F-9. The Department of Water Resources (DWR), the agency which operates the State Water Project, owns the Clifton Court Forebay, a water area adjacent to the beginning of the California Aqueduct. As part of the State's goals to protect the integrity of the Delta islands, DWR has purchased most of Twitchell Island (3,500 acres) and plans to acquire most of Sherman Island (10,000 acres) to control subsidence and protect the levees. DWR proposes to convert the agricultural lands to wildlife habitat. A national expert has completed studies on the habitat values. DWR owns additional lands, some managed by Department of Fish and Game and some leased to farmers.

F-10. The Department of Fish and Game owns 8,080 acres of land in the Primary Zone. Some of that area is underwater in the Lower Sherman Island Wildlife Area. Another large parcel is 2,990 acres in the Yolo Bypass. The Department owns Woodbridge Ecological Reserve, Calhoun Cut Ecological Reserve, and Webb Tract Berms and Islands, along with several small islands.

F-11. Federal lands include Corps of Engineers dredge spoils disposal site on the southern tip of Grand Island, and Bureau of Reclamation land north of the Cross Channel.

F-12. Proposed land use changes in the Primary Zone are primarily purchase of private lands by State and federal agencies and private non-profit groups for enhancement for wildlife habitat. Proposed projects include:

Stone Lakes Refuge/U.S. Fish and Wildlife Service: 9,000 acres (18,000 acres total)

Twitchell Island/Department of Water Resources: approximately 3,500 acres

Sherman Island/Department of Water Resources: approximately 10,000 acres

Prospect Island/Trust for Public Lands: 1,228 acres

Yolo Basin Wetlands/Department of Fish and Game : 2,990 acres

F-13. Other projects will provide wildlife habitat as mitigation for new projects on privately owned land:

Medford Island/Private: 200 acres of mitigation bank

Palm Tract Mitigation for California-Oregon Transmission Line: 1,069 acres

Port of Sacramento/along deepwater channel: 420 acres of possible mitigation bank

F-14. The Delta Wetlands project would convert four islands from agricultural uses to two reservoirs and two agriculture/wetland islands:

5,590 acres on Bacon Island (reservoir)

5,517 acres on Webb Island (reservoir)

5,910 acres on Bouldin Island (agriculture/wetland)

3,014 acres on Holland Island (agriculture/wetland)

F-15. The Central Valley Habitat Joint Venture Implementation Plan, a joint public-private project, hopes to provide seasonal wetland habitat on privately-owned agricultural lands. The plan sets the following goals in the area which includes much of the legal Delta:

Restore 19,500 acres of land to wetlands.

Defer tillage on 13,026 acres of grain fields.

Winter flooding on 40,000 acres.

Set-aside lands on 16,288 acres.

F-16. Acquisition of farmed land, and subsequent retirement of that land, affects the economic base for farm support industries; the economic base for community business that rely on patronage from citizens working in farm or farm support industries; the tax and assessment base for special districts,

county, and State; and existing wildlife use patterns which have adapted to agricultural land use patterns.

F-17. The highest quality wildlife habitat in the core Delta is the large open expanse of farmland, with a mosaic of small grain crop residues and shallow flooded fields, allowing wildlife to feed and rest.

F-18. Adverse environmental impacts of new development projects in and near the Delta are being mitigated through development and use of mitigation banks, such as Medford Island.

Land Use Policies:

P-1. The rich cultural heritage and strong agricultural base of the Delta shall be preserved and recognized in public/private facilities, such as museums within the existing communities.

P-2. Local government General Plans and zoning codes shall continue to strongly promote agriculture as the primary land use in the Primary Zone; recreation land uses shall be supported in appropriate locations and where the recreation uses do not conflict with agricultural land uses or other beneficial uses, such as waterside habitat.

County plans and ordinances may support transfer of development rights, lot splits with no increase in density, and clustering to support long-term agricultural viability and open space values of the Primary Zone. Clustering is intended to support efficient use of agricultural lands, not to support new urban development in the Primary Zone. Local governments shall specifically indicate when, how, and why these options would be allowed in the Primary Zone.

P-3. New residential, recreational, commercial, or industrial development shall ensure that appropriate buffer areas are provided by those proposing new development to prevent conflicts between any proposed use and existing agricultural use. Buffers shall adequately protect integrity of land for existing and future agricultural uses. Buffers may include berms and vegetation, as well as setbacks of 500 to 1,000 feet.

P-4. New non-agricultural residential development, if needed, shall be located within the existing Primary Zone communities where support infrastructure and flood protection are already provided.

P-5. Local government General Plans shall address criteria under which General Plan amendments in the Primary Zone will be evaluated. Proposed amendments to local government General Plans for areas in the Primary Zone shall be evaluated in terms of consistency of the overall goals and program of the Delta Protection Commission.

P-6. Subsidence control shall be a key factor in evaluating land use proposals.

P-7. Structures shall be set back from levees and areas which may be needed for future levee expansion.

P-8. Local government policies regarding mitigation of adverse environmental impacts under the California Environmental Quality Act may allow mitigation beyond County boundaries, if acceptable to reviewing fish and wildlife agencies, for example in approved mitigation banks. Mitigation in the Primary Zone for loss of agricultural lands in the Secondary Zone may be appropriate if the mitigation program supports continued farming in the Primary Zone.

P-9. The implementation of the policies and recommendations contained in this Plan shall not be achieved through the exercise of the power of eminent domain unless requested by the landowner.

Land Use Recommendations:

R-1. A program by non-profit groups or other appropriate entities should be developed to promote acquisition of wildlife and agricultural conservation easements on private lands with the goal of protecting agriculture and wildlife habitat in the Delta.

R-2. Public agencies and non-profit groups have or propose to purchase thousands of acres of agricultural lands to restore to wildlife habitat. The amount, type, and location of land identified to be enhanced for wildlife habitat should be studied by wildlife experts to determine goals for future acquisition and restoration. Lands acquired for wildlife habitat should also be evaluated for recreation, access, research and other needed uses in the Delta. Habitat restoration projects should not adversely impact surrounding agricultural practices. Public-private partnerships in management of public lands should be encouraged. Public agencies shall provide funds to replace lost tax base when land is removed from private ownership.

R-3. Multiple use of agricultural lands for commercial agriculture, wildlife habitat, and, if appropriate, recreational use, should be supported, and funding to offset management costs pursued from all possible sources. Public agencies shall provide funds to replace lost tax base when land is removed from private ownership.

R-4. Because of the need to continually dredge the channels serving the two ports, it is essential to maintain spoil sites and not allow existing spoil sites to be converted to industrial or other uses which preclude or limit their use as a spoil sites.

R-5. To the extent possible, any development in the Secondary Zone should include an appropriate buffer zone to prevent impacts of such development on the lands in the Primary Zone. Local governments should consider needs of agriculture in determining such a buffer.

R-6. Water reservoirs that are consistent with other uses in the Delta should be permitted.

AGRICULTURE

Delta agricultural lands were "reclaimed" through construction of levees and drainage of the marshy islands of the area. In less than 100 years, from 1850 to 1930, hundreds of thousands of acres of land went into agricultural production. The farmers and landowners represented a cross section of the new Americans-- Slavs, Dutch, German, English, and others. Many groups of immigrants first labored in the fields, then went on to become landowners or tenant farmers including Portuguese, Chinese, Japanese, Filipinos, and Hindus.

Early crops were grains, and fruits and vegetables marketed in the nearby cities. Early specialty crops included wheat, barley, beans, and potatoes. Later asparagus, sugar beets, tomatoes, and celery grew in popularity. Currently, the Delta counties raise a variety of crops including grains, fruits, field crops, nuts, seeds, pasture and alfalfa, and vegetables.

In the recent past, thousands of acres of agricultural lands were developed for residential and other urban uses. Between 1976 and 1993, about 21,600 acres in the Secondary Zone of the Delta were developed. Of the 21,600 acres, about 5,800 acres were orchards. The biggest change in the Primary Zone in that period in was the planting of about 4,500 acres of new orchards and vineyards. Loss of steady water supplies for Valley farmers will tend to make Delta lands with their riparian water rights more valuable for agriculture. New markets to sell crops and new crops, including crops to burn as energy sources, will continue to keep agriculture an important land use in the Delta and California.

Local governments have certain limited regulatory authority over agricultural lands, including minimum parcel sizes. While each of the five Delta counties has different minimum parcel sizes, each County clearly delineates the Delta lands for long-term agricultural use. Local governments use "land use tools" such as an agricultural element in the General Plan, adoption of an urban limit line, buffers between agriculture and other approved uses, adoption of a Right to Farm ordinance, controls over subdivisions of agricultural lands, limitations on land uses allowable in the agricultural zone, limitations on changing General Plan designations, acquisition of conservation easements, transfer of development rights, and full support of Williamson Act programs.

Agricultural lands provide rich seasonal wildlife habitat. Thousands of acres of agricultural lands are flooded after harvest and provide feeding and resting areas for local and migratory birds and other wildlife. Development of a management plan for seasonal flooding helps maximize the wildlife values and lessen opportunities for agricultural pests.

Goal: To support long-term viability of commercial agriculture and to discourage inappropriate development of agricultural lands.

Agriculture Findings:

F-1. The State of California has about 30 million acres of agricultural land out of a total of 100 million acres in the United States. Of the 30 million acres of agricultural lands, about 8 million are irrigated. California leads the nation in the production of food and fiber. California agricultural products are diverse, with over 250 crops and livestock commodities, and with no one crop dominating. The value of farm products statewide in 1992 was \$18.1 billion, over 9% of the State's economy. Each California farmer produces enough food and fiber for 129 people, including 97 people in the U.S. and 32 abroad.

F-2. The State of California tops the list of states losing farms. In 1992, California lost 4,000 farms. However, the average farm size increased slightly from 468 acres to 473 acres (about 1%).

F-3. The total agricultural income for the five Delta counties is \$1.6 billion dollars (1993). The Delta portions of the five counties are some of the most valuable agricultural land in each County due to the rich peat and mineral soils and the riparian water supply.

F-4. The Delta counties designate the Delta lands primarily for agricultural use; Contra Costa County has a special "Delta Recreation and Resource" designation for the Delta islands.

F-5. New trade and export opportunities will probably increase markets for California's agricultural products. Currently State exports are at \$4.7 billion.

F-6. Consumer trends, new crops, and new uses for crops will continue to change the face of agriculture. Examples are growing crops for fuel for power plants and cars; reuse and recycling of portions of crops such as cotton seed and soybean oil for fuel and corn stalks as a fuel source.

F-7. Current trends, regulations, and programs are resulting in reduced use of chemical fertilizers, pesticides, and herbicides. There is an increasing use of biochemical agents and integrated crop management. Farmers need to maintain or increase crop production levels.

F-8. As in other parts of government, program costs such as information gathering and dissemination are being shifted from government to agriculture. Costs of regulation are also being shifted to users, reflected in larger permit fees, etc.

F-9. Local government has used various means to protect agricultural land uses: adopting right to

farm ordinances, adopting rules prohibiting subdivision of lands under Williamson Act contract, adoption of urban limit lines, requiring buffers between non-agricultural and agricultural land uses, increasing minimum parcel sizes, adopting an agricultural element to the General Plan, adopting criteria to evaluate proposals to take land out of agricultural use, purchasing conservation easements (development rights) to compensate landowner for loss of development potential, and allowing transfer of development rights from agricultural parcels to other parcels.

F-10. Conflicts between agricultural activities and new residential, commercial, industrial, and recreational uses create long-term conflicts which have a deleterious impact on agriculture. Complaints by non-farmers include: noise, dust, odors, flies, mosquitoes, aerial applications of fertilizer, pesticide and herbicide, night activity, and other aspects of normal agricultural activity. Complaints by farmers include trash, vandalism, increased traffic, loss of agricultural land, and dust.

F-11. Programs at State and federal level support land management to enhance habitat values on private agricultural lands. Some programs will result in permanent conversion of agricultural land. Examples include: creation of wetlands on agricultural lands; seasonal flooding of agricultural lands; deferred tillage; deferred harvesting of grains; enhancement of field edges as habitat; and planting native plants along roadways and between fields. However, many of the existing programs do not reflect the unique Delta resources and opportunities.

F-12. Agriculture in the Delta evolves as farming practices, market opportunities, and government programs change. Availability of water makes the Delta a unique geographical region for agriculture. Future agricultural practices may require construction of additional infrastructure to accommodate more intensive agricultural operations.

Agriculture Policies:

P-1. Commercial agriculture in the Delta shall be supported and encouraged as a key element in the State's economy and in providing the food supply needed to sustain the increasing population of the State, the Nation, and the world.

P-2. Local governments shall identify the unique qualities of the Delta which make it well suited for agriculture. These qualities include: rich soil, ample supplies of water, long growing season, mild climate, and proximity to packaging and shipping infrastructure. The unique physical characteristics of the Delta also require that agricultural land owners maintain extensive levee systems, provide flood control, and have adequate drainage to allow the lands to be farmed.

P-3. Education of the local populations about the value and rich heritage of agriculture in the State and in the Delta shall be continued and expanded.

P-4. Local governments shall support long-term viability of commercial agriculture in the Delta because of its economic and environmental importance to the State and local communities.

P-5. Support shall be given to current and alternative programs that help to minimize the need for costly production inputs such as fertilizers, pesticides, and herbicides as long as crop production levels and agricultural income can be maintained. Improving crop production and agricultural income is vital to the success of Delta agriculture.

P-6. Each local government shall continue to implement the necessary plans and ordinances to: maximize agricultural parcel size; reduce subdivision of agricultural lands; protect ordinary agricultural activities; protect agricultural land from conversion to other uses; and clearly define areas in that jurisdiction where urban land uses are appropriate and where agricultural land uses are appropriate.

An optimum package of regulatory and incentive programs would include: (1) an urban limit line; (2) minimum parcel size consistent with local agricultural practices and needs; (3) strict subdivision regulations regarding subdivision of agricultural lands to ensure that subdivided lands will continue in agriculture; (4) delete from zoning ordinances "other" land uses which are not compatible with agriculture; (5) require adequate buffers between agricultural and non-agricultural land uses particularly residential development outside but adjacent to the Primary Zone; (6) an agriculture element of the General Plan; (7) a right-to-farm ordinance; and (8) a conservation easement program.

P-7. Encourage acquisition of agricultural conservation easements as mitigation for projects within each county, or through public or private funds obtained to protect agricultural and open space values, and habitat value that is associated with agricultural operations. Encourage transfer of development rights within land holdings, from parcel to parcel within the Delta, and where appropriate, to sites outside the Delta. Promote use of environmental mitigation in agricultural areas only when it is consistent and compatible with ongoing agricultural operations and when developed in appropriate locations designated on a county-wide or Delta-wide habitat management plan.

P-8. Encourage management of agricultural lands which maximize wildlife habitat seasonally and year-round, through techniques such as sequential flooding in fall and winter, leaving crop residue, creation of mosaic of small grains and flooded areas, controlling predators, controlling poaching, controlling public access, and others.

P-9. Local governments may continue to retain agricultural zoning and minimum parcel sizes as described in zoning codes in place January 1, 1992. Where minimum parcel size is less than 40 acres, local governments shall describe how smaller parcel sizes will support long-term viability of commercial agriculture in the Primary Zone. This policy shall not be construed to require the re-zoning of subminimum parcels.

P-10. Local governments may develop programs to cluster agriculture-dependent residential units or transfer development rights (TDRs) to off-site locations. Clustering on a single farm would be for family members or employees and would not exceed maximum number of units allowed under existing zoning as of January 1, 1992. Clustering would be accompanied by conditions to preserve agricultural use and open space values on the balance of the property. TDRs may involve transfers from farms to Primary Zone communities with adequate flood protection to protect residential use, or to sites out of the Primary Zone.

P-11. Local governments that pursue clustering or transfer of development rights shall proceed with adoption of procedures to implement such programs as part of the Delta plans.

P-12. Where portions of Cities are located within the Primary Zone, Cities shall indicate zoning which was in place on January 1, 1992. Future changes to City General Plans or zoning ordinances shall conform to the adopted Land Use and Resource Management Plan.

Agriculture Recommendations:

R-1. Programs to educate California and the U.S. about the value and diversity of California agriculture should continue. Education should provide information about various crops and about the different agricultural regions, such as the Delta.

R-2. As new information on best management practices to control subsidence of peat soils becomes available, the Commission should review that information and, if appropriate, amend the Plan.

R-3. The five Delta county Farm Bureaus should coordinate on issues of joint concern.

WATER

In California, rainfall runoff and snowmelt are captured in reservoirs to redistribute to urban and agricultural customers and for environmental uses. About 75% of the State's water originates north of Sacramento; and about 75% of the State's water needs occur south of Sacramento.

Water bound for distribution through both the State Water Project and the federal Central Valley Project is taken from the south Delta. In addition, water to serve some Bay Area urban users is taken from the Delta. The State project has contracts to export up to 4.2 million acre feet per year from the Delta and the federal project another 3.3 million acre feet per year. Of the water in the two developed water systems, about 83% is used for agriculture and about 17% is for "urban" uses. About two-thirds of the State's population gets at least a portion of its drinking water from the Delta. In addition, Delta farmers also have rights to irrigate with water taken directly from Delta sloughs and channels.

Water quality in the Delta is regulated by the Regional Water Quality Control Boards through permit review of "point" discharges, such as discharges of treated water from sewage treatment plants and discharges to land. Water quality concerns related to drinking water include salinity intrusion, wastewater discharges, agricultural drainage water, trihalomethane precursor formation, and untreated stormdrain water.

The State Water Resources Control Board and the Regional Boards also designate beneficial uses of the State's waters. In the Delta, beneficial uses include: municipal and domestic supply; agriculture; industry; groundwater recharge; navigation; recreation; wildlife habitat; fish migration and spawning; and preservation of rare and endangered species.

During low flow and drought conditions, increased salinity of water of the western Delta can have a detrimental effect on agriculture in the area as well as the quality of drinking water supplies.

Water is being applied to some Delta lands to restore wetland habitats. This includes some areas proposed for permanent wetland status and thousands of acres of seasonally-flooded agricultural lands. Application of water can also result in enhanced habitat for mosquitoes, a recognized pest and health hazard.

Goal: Protect long-term water quality in the Delta for agriculture, municipal, industrial, water-contact recreation, and fish and wildlife habitat uses, as well as all other designated beneficial uses.

Water Findings:

F-1. Water flows from the Central Valley watershed into the Delta. The Delta's natural and constructed waterways transport water towards lower elevation areas and San Francisco Bay, and to the State and federal project pumps.

F-2. About 83% of the State's developed water is used for agricultural irrigation. Developed water means water stored and managed for urban, agricultural, or environmental uses.

F-3. Most Delta farms use water taken directly from Delta sloughs and rivers under riparian water rights through unscreened diversions.

F-4. Urban water users use about 17% of the State's developed water; residential water use is about half that amount.

F-5. Other water uses which use approximately 132 million acre feet per year include: wildlife habitat, salinity control, wild and scenic rivers, and other natural uses.

F-6. The Central Valley Regional Water Quality Control Board has designated the following beneficial uses in the Delta:

Municipal and Domestic Supply

Agricultural Supply: Irrigation and Stock Watering

Industrial Process and Service Supply

Groundwater Recharge

Freshwater Replenishment

Navigation

Hydroelectric Power Generation

Water-Contact and Nonwater-Contact Recreation

Freshwater Habitat

Preservation of Rare and Endangered Species

Fish Migration/Fish Spawning

F-7. Water quality is regulated by the State Water Resources Control Board and both the Central Valley Regional Water Quality Control Board (Central and Eastern Delta) and the San Francisco Regional Water Quality Control Board (Western Delta) under both State and federal laws.

F-8. Use of water is regulated by the State Water Resources Control Board and by the federal government as it affects critical environmental issues.

F-9. Water in the Delta generally meets current standards for beneficial uses, including drinking water standards once the water is treated.

F-10. Water quality issues include: ocean salinity intrusion; materials carried in agricultural return waters; runoff from urban areas in the Delta watershed including discharge of treated municipal wastewater; formation of trihalomethane precursors and other disinfection by-products in drinking water resulting from chemicals added during water treatment processes; possible local problems associated with on-site sewage disposal; and on-land disposal of biosolids (sludge) and treated wastewater.

F-11. Salinity is a key Delta water quality issue which affects land use, and which is under regulation of State and federal agencies.

F-12. The impacts of non-point source discharges including agricultural discharges, both within and upstream of the Delta, are currently being studied and subjected to increasing regulation.

F-13. Water is needed to enhance seasonal and year-round wildlife habitat in the Delta such as flooding agricultural fields in fall and winter. Seasonal flooding is of particular value to migratory waterfowl.

F-14. Flooding in the Delta, if not properly managed can create habitat for mosquitoes, a concern where wetlands and population centers are near to each other.

F-15. Water-contact recreation is popular in the Delta and requires appropriate water quality.

F-16. Water regulators, water producers, and water consumers all hold interests and responsibilities for various aspects of the State's waters. The responsibilities of various agencies are set out in State and federal laws and regulations.

F-17. Transport of State and federal project water through the Delta does result in levee erosion and reverse flows and may detrimentally affect some fish species.

F-18. Recreational boating activities may degrade water quality by increasing turbidity, release of oily wastes, particularly from outboard motors, anti-fouling paints, and release of untreated sewage and other wastes.

F-19. Commercial shipping vessel activities may degrade water quality by increasing turbidity, releasing bilge water, and discharging other solid and liquid wastes.

F-20. The State has contracts, which are enforceable in court, with a number of entities in the Delta, including the North and South Delta Water Agencies and the East Contra Costa Irrigation District, that deal with specified needs in the Agencies' boundaries for water for agricultural use.

F-21. In 1992, Governor Pete Wilson established a comprehensive state water policy. In 1994, the Governor and the Secretary of the Interior, and others, signed the CALFED accord setting water policy for the next three years and outlining a new process for a long-term resolution of California's water issues.

Water Policies:

P-1. Salinity levels in Delta waters shall ensure full agricultural use of Delta agricultural lands, provide habitat for aquatic life, and meet requirements for drinking water and industrial uses.

P-2. Design, construction, and management of any flooding program to provide seasonal wildlife habitat on agricultural lands shall incorporate "best management practices" to minimize mosquito breeding opportunities and shall be coordinated with the local vector control district. Each of the four vector control districts in the Delta provides specific wetland/mosquito management criteria to landowners within their district.

P-3. Water agencies at local, state, and federal levels shall work together to ensure that adequate Delta water quality standards are set and met and that beneficial uses of State waters are protected consistent with the CALFED agreement.

Water Recommendations:

R-1. The Delta waterways should continue to serve as a primary transportation system moving water to the State's natural and developed water systems.

R-2. Delta water rights should be respected and protected.

R-3. Programs to enhance the natural values of the State's aquatic habitats and water quality will benefit the Delta and should be supported.

R-4. Programs to regulate agricultural drainage in the Delta should be accompanied with education programs, be implemented over time, and should, where needed, provide financial assistance such as grants and interest-free loans to ensure compliance. Any regulation of Delta agricultural discharges must recognize that a) dischargers must be permitted to discharge back to the channels any dissolved solid loads that were derived from the channels in irrigation diversions and seepage inflows, and b) any net addition of dissolved carbon compounds must be compared to the addition of such compounds that would occur with any other land use option that would provide equal protection of the land and channel configuration and would consume no more water.

R-5. Water for flooding to provide seasonal and year-round wildlife habitat should be provided as part of State and federal programs to provide water for wildlife habitat.

R-6. Water quality monitoring programs should measure Delta waters to ensure they meet water-contact recreation and other water quality standards.

R-7. State and federal water projects are beneficiaries of the Delta waterways and levees; the projects should fund that portion of levee erosion caused by water transport and should continue programs that fund protection of Delta levees.

R-8. Water quality at Delta drinking water intakes should be maintained or enhanced.

RECREATION AND ACCESS

The Delta is a unique geographic region which provides opportunities for water-oriented recreation, such as boating, and resource-oriented recreation, such as fishing and hunting. Many of the users are residents of communities in the Secondary Zone and beyond; some are local residents. Boaters come from the greater Bay Area and from other parts of the State to visit the Delta. Many visitors come from out of the area and rent houseboats from local marinas. There are no current studies which document for the entire Delta, the number of recreational users, length of visit, dollars spent per visitor day, age, sex or ethnic background of visitors, or type of facilities needed to meet present and future visitor needs.

Most of the recreation facilities are provided through private marinas. Several thousand boat berths are located in the Primary Zone, almost equally divided between Contra Costa, Sacramento, and San Joaquin Counties. Private facilities also provide launching facilities, RV and tent camping, picnicking, restaurants, and bait and tackle shops. Waterskiing and riding Personal Water Craft (PWC)* are popular water-oriented activities.

Public parks are limited in number. There are five fishing access/launching facilities owned by Department of Fish and Game and managed by Sacramento and Yolo Counties. San Joaquin County provides land and water access at Westgate Park. Brannan Island State Park provides: boat launching; camping; swimming; nature interpretation; and wind surfing.

Hunting occurs mainly on private lands and clubs; some hunting is allowed on State-owned lands and water areas. Facilities for Delta residents are located in the towns and at local schools. Locally-sponsored festivals in Isleton, Walnut Grove, and Courtland bring visitors into the Delta during the summer months.

Most of the Delta land areas are privately owned and used for agriculture. Some recreational users abuse private lands by littering, trespassing, picking fruit or vegetables from the fields, vandalizing pumps or other farm equipment, hunting or fishing in violation of State laws, or by driving on unpaved levee roads not suitable for automobile use.

Bank fishing is a popular Delta activity with few formal support facilities. The fisherman park alongside and on public and private roads, occasionally creating a safety hazard. Virtually no garbage or restroom facilities are available.

Concerns have been raised that boating activities create vessel wakes that damage levees, and that boating and PWC activity disturbs wildlife living in the sloughs and waterways. There is no regulation of the number of vessels using the Delta waterways and there is concern that some areas of the Delta have reached maximum capacity for some water-oriented recreational activities. For example, quiet boat fishing does not mix with PWC activity or waterskiing.

Protection of public safety and compliance with boating and fish and game laws are carried out by peace officers in a number of agencies including Coast Guard, State Department of Parks and Recreation, State Department of Fish and Game, and County Sheriffs' Marine Patrols (see page 50). Due to financial cutbacks, most County marine patrol programs have been reduced.

New recreational facilities could be provided at low cost on publicly-owned land where those lands will be supervised. Examples include: pedestrian access on Reclamation Board-owned levees adjacent to Brannan Island State Park; construction of new visitor facilities, interpretive facilities and trails at the proposed Stone Lakes Wild Life Refuge; and pedestrian trails, visitor facilities, and facilities to allow access from the water to the land at Delta Meadows State Park.

As local governments authorize new or remodeled private commercial recreation facilities, use of appropriate design can minimize conflicts between Delta user groups and provide stronger identity for Delta facilities.

*"Personal Water Craft" (PWC) is the general term for a broad range of small, powered boats that typically carry one or two persons, and are popularly known by registered tradenames such as Jet Ski, Ski Doo, etc.

Goal: To promote continued recreational use of the land and waters of the Delta; to ensure that needed facilities that allow such uses are constructed, maintained, and supervised; to protect landowners from unauthorized recreational uses on private lands; and to maximize dwindling public funds for recreation by promoting public-private partnerships and multiple use of Delta lands.

Recreation and Access Findings:

F-1. Water-oriented recreation has been popular in the Delta since the late 1930's and 1940's. A 1980 report prepared for Department of Water Resources estimated 12 million recreation days annually since 1977. Most recreation use occurs late spring through early fall, although recreation activities occur year-round. There are no current, Delta-wide user statistics available.

F-2. Population of the Primary Zone continues to drop from its population highs in the early 1900's. Population in cities and areas around the Delta (Fairfield, Davis, Sacramento, Lodi, Stockton, West Sacramento, Galt, Laguna/Elk Grove, Lathrop, Tracy, Brentwood, Antioch, and Pittsburg) continue to increase dramatically. Over 21,000 acres of agricultural land in the Secondary Zone (8 percent) were converted to urban uses between 1976 and 1993, a 50 percent increase in urban use.

F-3. Studies show that most people who recreate in the Delta live within a 40 mile radius of the Primary Zone (Bay Area-Yuba City/Marysville-Highway 49-Turlock) and reside in Contra Costa, San Joaquin, Sacramento, Alameda, and Solano Counties. The rest live within a 100 mile radius (Red Bluff-Tahoe-Fresno).

F-4. The unique recreational aspect of the Delta is the extensive network of waterways. Many

waterways are owned by the State of California and are under the supervision of State agencies, especially the State Lands Commission and the Department of Fish and Game. Many waterways are dredger cuts which were excavated to provide materials for levee construction. Dredger cuts inundated with navigable waters may be used by the public for navigation.

F-5. The Delta waterways are recognized as valuable habitat for resident and migratory species, including fish, amphibians, birds, and mammals.

F-6. Some recreational activities are detrimental to habitat values; such as those that create loud noises, create waves or wakes; or disturb sediments. Recreational boating adversely impacts the stability of some levees through creation of wakes increasing costs of maintenance. Wake erosion also adversely impacts wildlife habitat areas, such as channel islands.

F-7. Most of the existing recreational opportunities are provided by the many private marinas. Marinas include support facilities (restrooms and pumpout facilities), launch ramps, boat storage, sales and repair, boat and houseboat rentals, bait shops, picnic areas, camping, RV camping, restaurants, and markets.

F-8. Marinas are located throughout Sacramento, Contra Costa, and San Joaquin Counties. Marinas are clustered in several locations within the Delta, notably Bethel Island (Contra Costa County) and Lower Andrus Island (Sacramento County).

A total of almost 11,000 berths exist in the Legal Delta; about 3,500 each in Sacramento, San Joaquin and Contra Costa Counties, about 350 in Solano County, and about 150 in Yolo County. Approximately 4,000 are located in Delta cities, the remainder in the Counties. Approximately 40 percent are located in the Primary Zone. Approximately 60 percent are located in the Secondary Zone.

F-9. Currently, Sacramento County is reviewing or has approved over 500 new berths and Contra Costa County is reviewing a new 341-berth marina at Discovery Bay West and a 24-berth marina at Bethel Island.

F-10 The marina permit application process is long, expensive and difficult due to: difficulty in obtaining upland sites and leases for underwater lands, land ownership issues, possible impacts to the environment including rare and endangered fish and plant species, limitations on dredging, and protection of riparian vegetation.

F-11 In the Primary Zone, **existing** public recreation and access facilities are limited in number and include: five fishing/launching access points owned by Department of Fish and Game and managed by Sacramento and Yolo Counties, fishing access at Clifton Court Forebay, White Slough Wildlife Area, Brannan Island State Park, Delta Meadows (minimal improvements), San Joaquin County's Westgate Landing, and White Slough Wildlife Area.

F-12 In the Primary Zone, **proposed** public facilities include: trails and an environmental education center at the Stone Lakes Wildlife Refuge; trails at Yolo Bypass Wetlands project; future improvements at Brannan Island State Park and Delta Meadows, and possible improvements on the Southern Pacific Railroad right-of-way between Freeport and Hood; public access and recreation components of Department of Water Resources's North and South Delta projects.

F-13 In the Secondary Zone, **existing** public recreation and access facilities provide access to Delta waterways. These facilities include: Antioch fishing piers; launch ramp, fishing pier, and Sandy Beach Park in Rio Vista; leveetop trails and Garcia Bend Launch Ramp in City of Sacramento; trails, small boat launching, and educational center at Cosumnes Preserve in Sacramento County; and in San Joaquin County: White Slough Fishing Access, Buckley Cove Marina Park, Fritz Grupe Park, Channel Boat Ramp Park, Louis Park, Dos Reis County Park, Mossdale Crossing Park and Oak

Grove Regional Park.

F-14 In the Secondary Zone, **proposed** public recreation and access facilities include: waterfront improvements and riverfront access in the Southport project in West Sacramento; City of Sacramento public golf course; new recreational vehicle park in Isleton; extensive riverfront access in Gold Rush City project (Stewart Tract) in the City of Lathrop; extensive riverfront access, marina, and two golf courses in Mountain House project in San Joaquin County; Delta Environmental Education Center and trails near Jersey Island in Contra Costa County; riverfront access in the Delta Cove project in Antioch; public golf course on Bishop Tract in San Joaquin County; a soccer complex near the Lodi sewage treatment plant. Five cities may receive applications for seven new marinas.

F-15 The most popular Delta recreational activities are boating and fishing. Fishing takes place on the water and from the levee banks. Other popular activities include: windsurfing, waterskiing, PWC activity, camping, hunting, attending special events, bicycling, and sightseeing.

F-16 Bank fishing takes place on the sides of levees adjacent to public roadways. The areas alongside the roadways used for parking and the levees belong to individual landowners or to Reclamation Districts, not the County or the State. While this "informal" use has persisted for many years, some landowners have had to prohibit access to certain levees where irresponsible or abusive use, littering, camping, and other activities have put the landowner, the levees, or agriculture in jeopardy.

F-17 Water sports use different sizes and types of watercraft

traveling at different speeds. To address the public safety concern raised by recreational users and Delta residents alike, the State and Counties have adopted and posted speed limits and no wake zones around docks and marinas. These regulations, and other boating safety laws, are enforced by the County Sheriffs' and Cities' Marine Patrols.

F-18 Law enforcement personnel in the Department of Fish and Game and Department of Parks and Recreation also enforce State and local laws.

F-19 Public funds are extremely limited for maintenance of existing facilities or construction of new facilities.

F-20 Negative impacts on uncontrolled public access in the Delta are the incidences of trespass, vandalism, littering, poaching, destruction of habitat, and fires.

Recreation and Access Policies:

P-1. Where public funds are limited, local governments shall promote maintenance and supervision of existing public recreation areas over construction of new public facilities.

P-2. To minimize impacts to agriculture and to wildlife habitat, local governments shall encourage expansion of existing private water-oriented commercial recreational facilities over construction of new facilities. Local governments shall ensure any new recreational facilities will be adequately supervised and maintained.

P-3. Local governments shall develop siting criteria for recreation projects which will ensure minimal adverse impacts on: agricultural land uses, levees, and public drinking water supply intakes, and identified sensitive wetland and habitat areas.

P-4. Local governments shall improve public safety on Delta waterways through enforcement of local, State, and federal laws.

P-5. Local governments shall encourage provision of publicly-funded amenities in or adjacent to private facilities, particularly if the private facility will agree to supervise and manage the facility (fishing pier, overlook, picnic area) thus lowering the long-term cost to the public.

P-6. Local governments shall support multiple uses of Delta agricultural lands, such as seasonal use for hunting, or improved parking and access sites.

P-7. Local governments shall support improved access for bank fishing along State highways and County roads where safe and adequate parking can be provided and with acquisition of proper rights-of-access from the landowner. Adequate policing, garbage cleanup, sanitation facilities, and fire suppression for such access shall be provided.

P-8. New, renovated, or expanded marinas shall include adequate restrooms, pumpout facilities, trash containers, oily waste disposal facilities, and other facilities necessary to meet needs of marina tenants. These facilities shall be provided free or at low cost to offset costs of maintenance.

P-9. Local governments shall encourage new recreation facilities that take advantage of the Delta's unique characteristics.

Recreation and Access Recommendations:

R-1. Support a scientifically-valid survey of current recreational uses and current and future recreation needs in the Delta to determine type, number, and location of needed recreation facilities. Study needs for trails, unified directional signage, and billboard controls, in the Delta.

R-2. Support a scientifically-valid study of the carrying capacity of the Delta waterways for recreation activities without degradation of habitat values which minimize impacts to agriculture or levees.

R-3. New projects in the Secondary Zone, adjacent to the Primary Zone, should include commercial and public recreation facilities which allow safe, supervised access to and along the Delta waterways (pedestrian and bike trails, launch ramps including small boat launch ramps, windsurfing access, overlooks, nature observation areas, interpretive information, picnic areas, etc.).

R-4. Marina owners and operators should take advantage of grants available from the Department of Boating and Waterways to fund new pump-outs.

R-5. To protect rare and endangered fish species from adverse impacts of poaching, the Department of Fish and Game (DFG) should study the feasibility and value of banning night fishing in the Delta.

R-6. State and federal projects in the Primary and Secondary Zones should include appropriate recreation and/or public access components to the extent consistent with project purposes and with available funding. State and federal agencies should consider private or user group improvements on publicly-owned lands to provide facilities (example: windsurf access at Brannan Island State Park).

R-7. Local governments should develop design guidelines for new or enlarged recreation facilities to protect adjacent agricultural land uses.

R-8. Local governments should develop funding sources to provide adequate enforcement of existing laws to protect health, safety and welfare of Delta recreational users.

R-9. To provide adequate dilution of any potential discharges, new marinas or marina expansions should not be permitted within 1.5 kilometers (0.9 miles) of any drinking water intake located in an

open waterway, nor within any waterway or dead-end slough that terminates in a drinking water intake. Projects not meeting this criteria should be considered on a case-by-case basis to determine if a proposed project can be mitigated to provide comparable effectiveness.

R-10. New, expanded, or renovated marinas should minimize toxic discharges (including paint, paint chips, chemicals, heavy metals, tributulin, oil, grease, and fuel) and prohibit discharges of untreated sewage as required under local, State, and federal laws and regulations.

LEVEES

Constructed levees are the key physical element which create and maintain the Delta as we know it today, allowing draining of the low-lying lands for agriculture. The levees protect human life and existing structures from flooding, define channels used for commercial navigation, create the Yolo Bypass, part of a regional flood control project, protect the upland habitat areas on the islands, and protect Delta water quality.

Largely due to subsidence, the failure of levees would result in flooded areas of substantial depths. Flood levels of fifteen (15) to twenty (20) feet can be expected at some locations. Due to wind and boat wave action, even the levee remnants and the habitat thereon will be eroded away as a result of a levee failure. Inundated areas will be similar to the areas known as Franks Tract and Mildred Island but with greater water depths. When levees in the Delta fail, there is a tremendous loss of wildlife habitat within the particular area flooded and the habitat remaining on the levee remnants is gradually eroded away. In addition to habitat losses, there is generally a significant loss of crops and destruction of farm equipment and farm buildings.

There are also other impacts associated with levee failures in the Delta including, but not limited to, severe alteration of the aquatic habitat that should also be recognized and noted. The levees surrounding the eight western islands have been determined to be of significance in maintaining the efficiency of salinity repulsion. Without such levee systems in place, greater amounts of freshwater will be required to provide comparable levels of salinity repulsion. When an island floods, due to the higher evaporation rate of flooded areas, more freshwater is lost to the atmosphere than would be used had the island been farmed. The result is an additional loss of about two acre feet per acre per year. This freshwater loss could be very significant if broad areas of the Delta were permanently flooded.

The levees were originally built by individual landowners to provide flood control. Later, reclamation districts were created which allowed the landowners in an area to assess themselves to build levees which benefitted the group as a whole. These levees were not built to a common standard and are called "non-project levees" or "local levees". "Project levees" or "federal levees" were designed and built by a federal agency as part of a flood control or shipping channel project and are maintained by the State or a local agency. Some locally constructed levees were subsequently adopted as federal levees.

Different standards have been adopted in the past regarding the growth and removal of vegetation on the levees. The construction-oriented agencies support vegetation control to allow maximum surveillance of the levees. Wildlife agencies promote growth of riparian vegetation to provide wildlife habitat. Agencies have recently adopted a new common standard.

While early levees were built to different heights and cross-sections, programs now require that non-project (local) levees at least meet the State's Flood Hazard Mitigation Plan standards to be eligible for federal financial assistance in case of a flood. The standard requires a levee crown elevation one foot above the 100 year flood elevation. In addition, to be eligible for Corps assistance in a Presidentially-declared Delta emergency, levees must meet or be able to show attempts to meet the PL-99 standard. The PL-99 Standard requires a levee crown elevation 1.5 feet above the 100 year

flood elevation.

Most levees were constructed from materials dredged from low-lying edges of islands, or adjacent channels. Emergency levee repairs have required importation of large amounts of riprap and other materials. Due to current concerns about the impacts of clamshell dredging on endangered fish species and water quality, dredging for levee maintenance has slowed. Other sources of material for levee maintenance are borrowed from island deposits or imported into the Delta.

Until the late 1970's, a significant portion of levee construction and maintenance costs were borne by the landowners. Under conditions, special funds from both State and federal programs provided assistance in emergencies. The State currently provides some funds for levee maintenance of non-project (local) levees. The State's current program, SB 34, is slated to sunset in 1999 and the monies in the program have varied from year to year. To continue high levels of levee maintenance, funds from multiple sources should be earmarked for a new or continued, permanent levee maintenance program. In addition, funds should be earmarked and set aside for emergency levee repairs and reclamation of flooded islands, perhaps in an infrastructure bank.

Levee maintenance work is regulated by multiple State and federal agencies. The regulatory authority and mission of the agencies is overlapping and in some situations contradictory. The length of time required and the amount of specialized information needed to obtain permits adds a considerable amount to the per mile cost of levee maintenance. The levee maintenance work is critical to maintain water quality in the Delta, to protect life and property, and to protect upland wildlife habitat. Emergency floodfight is coordinated by Department of Water Resources (DWR) and the reclamation districts. In an emergency, DWR can help provide labor and other resources. After a levee break, the reclamation district must coordinate with federal agencies to receive assistance for levee repair and dewatering.

Goal: Support the improvement and long-term maintenance of Delta levees by coordinating permit reviews and guidelines for levee maintenance. Develop a long-term funding program for levee maintenance. Protect levees in emergency situations. Give levee rehabilitation and maintenance the priority over other uses of levee areas.

Levees Findings:

F-1. Many Delta levees were originally built atop low natural levees along the waterways. The construction of higher levees was possible after the invention of the clamshell dredge. The levees were built of available material, without engineered designs.

F-2. The cost of constructing and maintaining the levees was born by the landowners and later by groups of landowners within reclamation districts. The reclamation districts are special districts created by the State that can assess landowners for the purpose of levee maintenance and drainage.

F-3. Large scale federal flood protection and navigation projects include about 25% of the Delta levees. These "project" levees were designed and constructed to standards set by the federal government on a case-by-case basis and are largely maintained by the State or other local agencies.

F-4. Local governments have responsibility to manage flood plains by controlling land uses and specific construction projects within the flood plains.

F-5. Guidelines for management of vegetation on levees promote grasses and limited tree growth allowing easy visual inspection and protection of the integrity of levees.

F-6. Where levees which are not routinely stripped of vegetation and become heavily vegetated, levee maintenance work will require removal of that vegetation; that loss of vegetation will likely require

mitigation under the California Environmental Quality Act. Mitigation means replacement of the habitat which is removed, on site or nearby. The replacement ratio may be larger than the acreage removed.

F-7. For non-project levees to be eligible for FEMA assistance in an Presidentially declared disaster, reclamation districts must bring levees to the Flood Hazard Mitigation Plan standards. Those standards currently are: one foot of freeboard above the 100-year flood frequency water-surface elevation; 16 foot crown width; water side levee slopes of 1.5 to 1; and land side levee slopes of 2 to 1 or flatter. For non-project levees to be eligible for Corps' assistance in a Presidentially declared Delta disaster levees must meet PL-99 standards. Those standards are: 1.5 feet above 100 year flood frequency water surface elevation; 16 foot crown width; water side levee slopes of 2 to 1; and land side levee slopes of 3 to 1 to 5 to 1, depending on height of levee and depth of peat.

F-8. Materials for levee construction and repair have routinely been dredged from adjacent waterways. Environmental regulations to protect endangered fish and other restrictions have limited access to this traditional source of material. Historically lower costs of using dredged material have been offset by increased regulatory costs. Other sources of levee maintenance material include: on-island deposits; quarries; construction projects, including habitat enhancement projects; and spoils from authorized maintenance dredging projects by ports or flood control districts.

F-9. Historically, all costs of levee maintenance fell on the landowners, even though multiple beneficiaries of the levees have been identified. Currently, assistance from the State is available to reclamation districts for maintenance of non-project levees under the Delta Levee Maintenance Subventions Program, due to expire January 1, 1999. No federal funds are provided for the State's levee maintenance program. Federal property owners are not subject to reclamation district assessments. No federal or State funds are available to share routine maintenance costs of most Project levees with the local agency responsible for that maintenance.

F-10. To participate in the State-funded levee maintenance program, the reclamation districts are required to prepare additional environmental analysis, prepare more detailed engineering plans, obtain state and federal permits, and provide mitigation to offset unavoidable losses of habitat. These conditions have resulted in higher per mile costs of levee maintenance.

F-11. Due to the many State and federal regulatory agencies with authority in the Delta, lack of coordination between those agencies, and continually evolving issues, the length of time to obtain approvals for levee maintenance ranges from approximately six months to several years.

F-12. No special funds have been reserved exclusively for emergency levee repair work carried out by the State or reclamation districts. The State has several means to accomplish emergency work including Water Code Section 128, the California Emergency Services Act, interagency agreements, and funding from SB 34. Banks have recently indicated reluctance to accept warrants from reclamation districts limiting options for funding emergency work.

F-13. Loss of Delta levees could result in loss of life; lowered water quality for water diverted by local water systems and for export through the State and federal water systems; loss of freshwater due to increased evaporation; loss of property, including crops and structures; and loss of habitat. Rodent dens and tunnels, particularly those created by beaver and muskrat, can adversely affect levee stability and are thought to have been the cause of numerous levee failures.

F-14. Although no "active" faults have been identified in the Delta planning area, many Delta levees are built upon materials that would be inherently unstable in the case of a seismic event. A zone of buried thrust faults has been identified north-south along the western Delta; this type of fault was the source of the recent Northridge earthquake. Although no Delta island has flooded as the result of seismic activity, Delta levees could suffer major damage in the event of a large earthquake.

F-15. Delta levees are subject to a number of factors which adversely affect the stability of the levees. Many of the levee foundations are unstable materials. The subsidence of the peat soils on many of the islands has resulted in increased pressure on the levees from water in the adjacent channels. The levees are constantly subjected to erosion from natural and created causes including: flood flow, tides, wind waves, vessel wakes, and waters drawn into the State and federal water projects.

Levee failures can be identified principally by the major mechanisms of failure (stability, overtopping, or subsurface seepage erosion), then more specifically by contributing factors (subsidence, cracks, and fractures, encroachments, waterside erosion, deformation, seepage, sinkholes, rodent burrows, and poor foundation conditions).

Levees Policies:

P-1. Delta levees shall be maintained to protect human life, to provide flood protection, to protect private and public property, to protect historic structures and communities, to protect riparian and upland habitat, to promote interstate and intrastate commerce, to protect water quality in the state and federal water projects, and to protect recreational use of the Delta area. Delta levee maintenance and rehabilitation shall be given priority over other uses of the levee areas. To the extent levee integrity is not jeopardized, other uses, including support of vegetation for wildlife habitat, shall be allowed.

P-2. If levee guidelines are needed, local governments shall adhere to guidelines for federal and local levee maintenance and construction at a minimum as stipulated in the Flood Hazard Mitigation Plan guidelines, and set longer term goals of meeting PL-99 Standards. If vegetation standards are needed, local governments shall adopt the adopted vegetation guidelines which promote native grasses and limited vegetation on specific areas of the levee.

P-3. Through flood ordinances based on FEMA model ordinances, local governments shall carefully and prudently carry out their responsibilities to regulate new construction within flood hazard areas to protect public health, safety, and welfare. Increased flood protection shall not result in densities beyond those allowed under zoning and General Plan designations in place on January 1, 1992, for lands in the Primary Zone.

P-4. Existing programs for emergency levee repair should be strengthened and better coordinated between local, State, and federal governments and shall include: interagency agreements and coordination; definition of an emergency; designation of emergency funds; emergency contracting procedures; emergency permitting procedures; and other necessary elements.

P-5. Local governments shall use their authority to control levee encroachments that are detrimental to levee maintenance.

Levees Recommendations:

R-1. Levee maintenance, rehabilitation, and upgrading should be established as the first and highest priority of use of the levee. No other use whether for habitat, trails, recreational facilities, or roads should be allowed to unreasonably adversely impact levee integrity or maintenance.

R-2. Landowners, through reclamation districts, should pay a portion of levee maintenance costs. The overall citizenry of California and the United States that benefits from the state and federal water projects, commerce and navigation, travel, production of crops, recreation, and protection of fish and wildlife habitat should also pay a substantial portion of the cost of maintaining the Delta levees. New programs of determining assessments on mineral leases and other beneficiaries should be evaluated by reclamation districts.

R-3. Due to the difficulty in identifying all the beneficiaries of both State and federal levees and the entities that cause adverse impacts to the levees, the simplest way to collect the funds needed to maintain the levees would be through non-fungable allocations from both the State and federal government to fund regular, on-going levee maintenance.

R-4. Where efficiencies of scale would result in cost savings and levee systems of two or more reclamation districts provide protection to the same area, the State and other regulatory agencies should consider approval of requests made by reclamation districts for such consolidation.

R-5. If funding is made available to the reclamation districts for levee maintenance, mitigation for removal of vegetation required to maintain existing levees should be coordinated through a memorandum of understanding between reclamation districts, State, and federal agencies, which results in minimal fiscal impacts to reclamation districts and which will result in "no net long term loss" of habitat in the legal Delta.

R-6. A "clearinghouse" for material suitable for levee maintenance should be created to assist in distributing appropriate materials to sites slated for maintenance work. Materials which have value for levee maintenance work, such as materials routinely dredged from Delta channels or materials otherwise excavated from within the Delta area, should be reserved first for levee maintenance work. Other uses should be considered only if the material is not needed or is unsuitable for levee maintenance work. Regulations should establish priorities for in-Delta use of soil excavated from within the Delta.

R-7. Study appropriateness of materials from other sources for levee maintenance and repair, similar to the Long Term Management Strategy prepared for the San Francisco Bay region.

R-8. To lower levee maintenance costs, streamlined permitting systems for authorization of dredging for levee maintenance and rehabilitation work, including the improvement of wildlife habitat and habitat mitigation sites, and for levee upgrading to mandated standards to protect public health and safety, should be instituted, with one state agency designated as lead agency and one federal agency designated as lead agency. Federal agency concurrence in such designations should be obtained.

R-9. The program for emergency levee repair should be strengthened. The program should include: definition of an emergency; designation of emergency funds; emergency contracting procedures; emergency permitting procedures and the designation of a State agency to provide immediate response to floodfight, close levee breaks, and dewater flooded areas where local agencies are unable to respond. An emergency program should develop a funding program to assist reclamation districts that are unable to pay such costs.

R-10. Maintain an inventory of the current status of Delta levees meeting various standards (HMP; PL-99; etc.)

R-11. Maintain an inventory of channel areas where toxic materials have been identified.

R-12. Levee maintaining agencies and fish and wildlife agencies should continue to cooperate to establish appropriate vegetation guidelines. Continuation of the SB 34 Program with its incentive funding for mitigation should be supported as the best way to accomplish the goals of levee maintenance with no net long term loss of habitat.

R-13. As much as feasible, levees should be designed and maintained to protect against damage from seismic activity. Those standards should not promote increased intensity or density of use beyond

those designated as of January 1, 1992.

R-14. Support on-going U.S. Army Corps of Engineers studies and programs that could provide funding, flood protection, and environmental restoration on Delta islands, and support further involvement to improve regulatory streamlining and study beneficial reuse of dredged material.

MARINE PATROL, BOATER EDUCATION, AND SAFETY PROGRAMS

Existing marine patrol services are provided primarily by the Delta County Sheriffs Departments, the Cities of West Sacramento and Sacramento (located in the Secondary Zone), and to a more limited extent, the Coast Guard, the Department of Fish and Game (DFG), and the Department of Parks and Recreation (DPR). While the DFG and DPR wardens are peace officers, their assignments are directly related to their Departments' mandates. The single Coast Guard vessel stationed in Rio Vista provides limited "policing", but the Coast Guard is extremely active in providing boater assistance and education.

The marine patrol services provided by the five Delta Counties have been severely reduced as part of recent County budget cutbacks. And, currently inter-agency communication on Delta waterways is limited; there is very little communication between different Counties, between the Counties and the State agencies, or between the Coast Guard and the other patrols.

Speeding, unsafe vessel operation, lack of proper safety equipment (life jackets), and alcohol-related incidents continue to be major problems on Delta waters. Of particular concern to Delta law enforcement officials are personal watercraft (PWC)*. PWC* use is increasing rapidly in the Delta and statewide, and many PWC* operators are inexperienced and underage. PWC* accidents accounted for one-third of the vessel accidents statewide in 1993.

In addition to patrolling the Delta waterways to enforce local, state, and federal laws, the marine patrols provide towing and emergency assistance (rescuing drowning victims, levee fires, etc.). A growing problem on the Delta waters is abandoned vessels. Currently there is no active program to locate, identify, and dispose of abandoned vessels; the primary roadblock to removing abandoned vessels is lack of funds.

Poaching of fish and wildlife occurs in the Delta and has been identified as one of several factors adversely affecting Delta fisheries. The Department of Water Resources (DWR) estimates that more than 500,000 undersized striped bass and tens of thousands of adult striped bass are illegally taken each year. In 1986 DFG and DWR agreed to offset direct losses of fish caused by both poaching and the State Water Project's pumping plant by forming the Delta Bay Enhanced Enforcement Project (DBEEP). From 1986 to September 1994, DBEEP wardens issued 4,500 citations for poaching and other Fish and Game violations.

The Coast Guard and local governments have authority to cite for pollution violations, such as oil spills, illegal dumping of sewage, etc. However, very few citations are issued because violators must be "caught in the act."

Volunteer groups provide invaluable services to the boating public in the Delta, especially important since recent funding cutbacks limited marine patrol staffing. The focus of the Coast Guard Auxiliary and the Power Squadron have been boater education and equipment inspection. The guiding concepts have been to assist the boater in becoming skilled in vessel operation and thus avoid problems on the water. The San Joaquin County Sheriff's Team of Active Retired Seniors program (S.T.A.R.S.) focuses on assisting boaters in distress and reporting incidents needing further assistance to the proper authorities.

The primary funding source for County marine patrols has traditionally been personal property tax revenue from vessels. However, Counties report that the shift in property taxes from local governments to the State resulted in the Counties losing much of the property tax they historically received from vessel property taxes. Other means to increase funding for marine patrols have been explored, for example, increased Delta boater registration fees to support Delta marine patrols. Additional funding development is needed to provide adequate levels of law enforcement on Delta waters.

*"Personal Water Craft" (PWC) is the general term for a broad range of small, powered boats that typically carry one or two persons, and are popularly known by registered tradenames such as Jet Ski, Ski Doo, etc.

Marine Patrol, Boater Education, and Safety Programs Findings:

F-1. Inter-agency coordination and communication is extremely limited. Most larger vessels are equipped with communications equipment. Smaller vessels are unable to communicate unless a CB radio or cellular phone is on board.

F-2. The Coast Guard has traditionally hosted at least one annual inter-agency meeting of Delta law enforcement agencies to coordinate activities and any changes in law or regulations.

F-3. The County sheriffs and City police tow distressed boaters free of charge. During busy boating seasons, local governments report that their marine patrols frequently tow distressed boaters.

F-4. The number of abandoned vessels in the Delta is increasing. Currently there is no active program to locate, identify, and dispose of abandoned vessels. To remove and dispose of abandoned vessels is costly.

F-5. The five Delta Counties and Cities of Sacramento and West Sacramento provide marine patrol services on Delta waterways. The Cities of West Sacramento and Sacramento are located in the Secondary Zone. Services are provided by peace officers and reserves that are trained professionals with ability to issue citations and make arrests. Local peace officers can enforce all local and State laws.

F-6. The County marine patrol services have been drastically reduced in the last few years due to budget cuts. The level of marine patrol services is not proportionate to the level of boating activity or number of berths in the Delta.

F-7. The Coast Guard operates an active facility in Rio Vista with responsibilities for the entire Delta region. Budgets have been cut; one boat patrols the entire area. Coast Guard supports fire-fighting activities when needed. The Coast Guard is capable of coordinating County patrols. Currently, only Contra Costa County marine patrol regularly coordinates with the Coast Guard.

F-8. Department of Parks and Recreation provides limited marine patrol services, largely on Park properties and when called to assist the Coast Guard in an emergency. Park rangers are trained peace officers.

F-9. Department of Fish and Game wardens provide land and water patrol services oriented to enforcement of the Fish and Game Code. Wardens are trained peace officers able to enforce all State laws if necessary.

F-10. Delta law enforcement officials indicate that boaters are taking advantage of the decrease in law enforcement personnel patrolling the Delta waters by violating speeding, equipment, and other boater

safety laws.

F-11. PWC* continue to grow in popularity and visibility and are responsible for an extremely high proportion of accidents and injuries. Operators continue to violate boating laws pertaining to PWC* operation.

F-12. Poaching has been identified as a significant problem in the Delta affecting wildlife. Substantial State resources are currently expended from funds generated from State Water Project contractors to supplement normal patrolling activities. Department of Fish and Game encourages public assistance in the form of the CalTIP program (anonymous telephoned tips).

F-13. Though State law enforcement officials have the authority to cite for illegal structures constructed along the waterways, generally they do not.

F-14. There is little current enforcement of State and federal pollution laws. Releases must be witnessed first hand or documented in photos or videos.

F-15. Intoxication continues to be a major problem resulting in accidents. Due to the major time commitment needed to make an arrest for intoxication, few are made. Instead, intoxicated boaters are directed off the water.

F-16. While the State overall has had a decrease in boating fatalities, the Delta region has not. Department of Boating and Waterways statistics show seven fatalities in 1989 and 12 fatalities in 1993.

F-17. The Legislature has been debating several proposed laws which would require additional equipment or training to enhance safety and public health aspects of recreational boating. Newly authorized legislation will provide additional protection for young children in vessels and ease in the provision of new pump-out facilities statewide.

F-18. Lack of adequate education and training of boat operators continues to result in accidents and violation of local, State, and federal laws on the waters of the Delta.

F-19. Volunteer programs provide extremely valuable services to boating through provision of supplemental patrols on Delta waterways, through boating education programs, and through provision of boating inspection services.

F-20. Reported funds generated from citations issued by County marine patrol staff range from \$100,000 to \$200,000, with extremely reduced personnel. Funds from citations do not meet fiscal requirements of current programs, but appear to offset a substantial portion of those costs.

F-21. Counties have slashed funding available for Sheriff Departments' marine patrol programs in recent years. Vessel personal property tax revenue is the primary source of revenue from boaters to County governments and reflects only those vessels permanently located in a county. These funds are collected by the Counties.

F-22. State funds are generated from vessel registration fees (\$9 for original registration and \$5 annual renewal fee; \$27 plus Vehicle License Fee per year for boat trailers) and from sales tax on boat gas. Some of the funds collected are designated for a subvention program for marine patrol funding managed by the Department of Boating and Waterways. Annual grants vary based on amount of funds collected, number of counties applying for funding, and the level of need of the applicant counties.

F-23. Vessels documented by the Coast Guard are exempt from State registration.

Marine Patrol, Boater Education, and Safety Programs Policies:

P-1. Marine patrol equipment shall be adequate to ensure communication with other county marine patrols, with State patrols on Delta waters, and with the Coast Guard.

P-2. Local government marine patrols shall notify the Coast Guard when and where patrols are on the water.

P-3. Local government marine patrol units shall participate in at least one meeting per year to coordinate with other Delta law enforcement programs to develop strategies for effective control, to discuss new laws and programs, and generally increase effectiveness and communication between the various marine patrol programs.

P-4. Local governments shall develop methods for quick processing of intoxicated boat operators which ensure that marine patrol staff remains on the water.

P-5. Local government marine patrol services shall recognize towing of disabled vessels as a low priority activity and should develop relationships with volunteer groups or private vendors to provide such services.

P-6. Local governments shall develop funding and implementation strategies to remove abandoned vessels from County waterways to avoid pollution of Delta waters and remove hazards to navigation.

P-7. Local government marine patrol programs shall coordinate with Department of Fish and Game to provide support in enforcement of State hunting and fishing laws.

P-8. Local governments shall provide adequate levels of marine patrol to ensure public health and safety on the waters of the Delta, taking into account funding available and the number of vessels moored in the Delta, launched into the Delta, and which travel into the Delta.

P-9. Local governments shall identify problems and solutions surrounding crimes of environmental pollution which can be addressed by local governments. Local governments shall consider feasible solutions (additional pump-outs, dye tablets in holding tanks, rewards for observers, etc.).

P-10. Local governments shall implement or support education and safety programs to address local, state, and federal laws aimed especially at PWC* operators and means to encourage attendance at such programs.

P-11. Local governments shall implement or support boater education programs to address local, State, and federal laws and means to encourage attendance at such programs.

P-12. Local government marine patrol programs shall encourage and coordinate with volunteer programs within their jurisdiction as a way to supplement human resources on the Delta waterways.

P-13. Adequate funds shall be reserved for marine patrol services. Sources could include: reservation of existing funds such as vessel property tax, launch ramp fees, fines collected from violators, county share of Fish and Game Code violation fines, and possible funds generated from rental houseboats, boats or PWC,* or from marina berths.

Marine Patrol, Boater Education, and Safety Programs Recommendations:

R-1. The Coast Guard should host at least one and preferably two meetings per year of marine patrol

programs to promote coordination and communication between the programs. Attendees should include: Counties, Cities, Ports, Department of Fish and Game, Department of Parks and Recreation, and any non-profit or volunteer groups providing education and training or patrol services in the Delta waters.

R-2. Department of Parks and Recreation (DPR) rangers should continue to patrol the State parks, and provide as much supplemental assistance to local governments and to Department of Fish and Game as possible. DPR rangers should enforce hunting and fishing laws and enforce pollution laws on the waters of the State parks.

R-3. Department of Fish and Game wardens and DBEEP staff should inform the Coast Guard of their general activities, and special enforcement programs.

R-4. A system for State peace officers to inform local government marine patrols of intoxicated boat operators should be developed and instituted.

R-5. Department of Boating and Waterways should continue boating education programs and continue current programs to fund installation of new pump-out facilities.

R-6. Non-profit and volunteer organizations should continue to assist in patrolling the Delta and offering assistance, such as towing, to stranded boaters. Boater education and inspection programs carried out by volunteers should continue and be promoted by all entities associated with Delta boating.

R-7. The Legislature should carefully and thoughtfully consider possible legislation and funding to enhance boater safety and welfare which may be suggested by local and State enforcement programs or by non-profit/volunteer groups, such as mandated boater training, hazard removal, hazard posting, and pollution cleanup.

R-8. The Legislature should designate adequate funding for boater education and marine patrol services.

R-9. The Legislature should consider possible legislation requiring boaters and PWC* operators to attend boating education and safety programs.

R-10. The Coast Guard should coordinate its vessel documentation program with the State of California to ensure that funds that would otherwise support boating programs are not diverted through the federal vessel documentation program.

IMPLEMENTATION

The Delta Protection Act of 1992 established the Delta Protection Commission, a new State entity to plan for and to guide the conservation and enhancement of the natural resources of the Delta, while sustaining agriculture and meeting increased recreational demand. The Act defines a Primary Zone, which comprises the principal jurisdiction of the Delta Protection Commission. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta"; the Secondary Zone is not within the planning area of the Delta Protection Commission. The Act requires the Commission to prepare and adopt a Land Use and Resource Management Plan for the Delta, which must meet specific goals.

For purposes of implementation issues, the Commission's duties may be characterized as including planning, conservation, and coordinating functions. The Act provides broad authority to the Commission to plan for the stated legislative goals of maintaining agricultural lands and natural resources in the Delta, while increasing recreation opportunities and public access.

In order to achieve these important goals, as measured against current baseline conditions, the Legislature has determined that local plans and decisions must be in conformance with the Commission's Plan and local decisions will be subject to appellate review by the Commission. The use of and consistently applied policies, subject to administrative review for conformance with the Act and Plan, will be helpful in achieving the goals of orderly and balanced conservation and development of Delta resources.

In view of the "sunset" clause in the Delta Protection Act, as to options for agency structure, the Commission may consider whether to recommend continuing in its current form, continuing in a revised form, and/or forming a separate or companion agency, such as a Conservancy or a resource conservation district, and/or let the "sunset" clause take effect.

Options available to the Commission to achieve the goals set forth in the Delta Protection Act of 1992 include:

A regional database with baseline conditions and a resource management plan with sufficiently specific standards and criteria in order to measure change, to evaluate progress, and to prepare the required annual reports to the Legislature.

A continuing planning effort, including review of local General Plan proposals, preparation of Plan updates, and consideration of future General Plan amendments in order to assure an effective, accurate, and dynamic resource management plan.

Continuing oversight of local development approvals as a means of assuring consistent implementation of the Commission's Plan, a function currently served by the Commission's appellate review duties.

An acquisition and management strategy for the voluntary acquisition of appropriate interests (conservation easements) in real property and for efficient management and economical support for related agricultural activities and habitat protection.

Coordination of the activities of various State and local agencies and non-profit organizations to provide an integrated stewardship scheme for Delta resources, to coordinate marina patrol activities, and to provide a database to facilitate resource protection, recreational uses, and sustained agricultural activity in the Delta.

From these many options that are available, numerous combinations are possible. In addition to the various elements of the Commission's Plan, the Commission could create partnerships with existing agencies and organizations, or the formation of new entities, would be helpful in achieving the goals of the Act. The Commission may recommend strengthening its planning and review functions, or emphasizing conservancy functions, or both. The Commission's recommendations can inform legislative consideration and review of the Act, which will be prompted by its "sunset clause".

A. Description of Local Government Responsibilities under the Delta Protection Act of 1992.

1. Prepare and Submit Local Plan. Within 180 days of the adoption of the regional plan, all local governments shall submit to the Commission proposed amendments which will cause their General Plans for the areas in the Primary Zone to be consistent with the criteria in Section 29763.5 (see below)(Section 29763).

The local governments can adopt the language in the Commission adopted Plan as a special area plan for the Delta area of the County, the local governments can identify which policies in their existing General Plans carry out the policies in the Commission adopted plan, or can prepare and submit a

special area plan of their own for the Delta area of the County.

The Commission's adopted Plan is intended to be used as a guide to the local governments to ensure that certain policy areas are addressed within each local government General Plan and to ensure that uniform policies are adopted Delta-wide for certain policy areas.

The local governments must ensure that when adopted, the General Plans, and any development approved or proposed that is consistent with the General Plan, will be consistent with the regional plan and will not (Section 29763.5):

- * result in wetland or riparian loss;
- * result in degradation of water quality;
- * result in increased nonpoint source pollution;
- * result in the degradation or reduction of Pacific Flyway habitat;
- * result in reduced public access, provided the access does not infringe on private property rights;
- * expose the public to increased flood hazard;
- * adversely impact agricultural lands or increase the potential for vandalism, trespass, or the creation of public private nuisance on public or private land;
- * result in the degradation or impairment of levee integrity;
- * result in increased requirements or restrictions upon agricultural practices in the Primary Zone.

These are also the criteria the Commission will use to evaluate the plans submitted by the local governments.

2. Amend Local Government General Plans. Upon approval by the Commission of the proposed General Plan amendments of the local governments, the local governments shall adopt the proposed General Plan amendments within 120 days of that approval.

The Delta Protection Act amends Section 21080.22 of the Public Resources Code to exempt the "activities and approvals by a local government necessary for the preparation of General Plan amendments" from the California Environmental Quality Act.

3. Local Government Implementation of the Act. Prior to adoption of the General Plan amendments, local governments that approve developments in the Primary Zone must adopt a series of findings that the development will not result in:

- * wetland or riparian loss;
- * degradation of water quality;
- * increased nonpoint source pollution or soil erosion, including subsidence or sedimentation;
- * degradation or reduction of Pacific Flyway habitat;
- * reduced public access, provided that access does not infringe upon private property rights;

- * expose the public to increased flood hazards;
- * adversely impacts agricultural lands or increase the potential for vandalism, trespass, or the creation of public or private nuisances on private or public lands;
- * degradation or impairment of levee integrity;
- * adversely impact navigation;
- * any increased requirements or restriction upon agricultural practices in the primary zone.

After the General Plan amendments are adopted, the local governments will approve development in the Primary Zone based on the amended General Plans.

B. Description of Delta Protection Commission Responsibilities under the Delta Protection Act of 1992.

1. Adopt Regional Plan for the Delta Primary Zone. The Commission must prepare and adopt, and thereafter review and maintain a comprehensive, long-term resource management plan for land uses within the Primary Zone of the Delta by October 1, 1994 (Section 29706(a)).

2. Review and Act on Proposed Local Government General Plan Amendments. The Commission shall act on the proposed General Plan amendments submitted by local governments within 60 days of receiving the proposed amendments. The criteria for approving the proposed General Plan amendments are described in A-1, above. The findings must be written, and based on substantial evidence in the record (Section 29763.5).

3. Meet California Environmental Quality Act (CEQA) Requirements. The Commission must meet CEQA requirements when it approves the General Plan amendments prepared and submitted by local governments (Section 21080.22).

4. Maintain Appeal Authority. As set out in Section 29770 of the Act, the Commission currently has and will continue for the term of the legislation, to have appeal authority for "any person aggrieved by any action taken by a local government in implementing the regional plan or otherwise taken pursuant to this division". The Commission has adopted regulations governing such appeals. If an appeal is accepted, the local action is suspended until the Commission completes its review of the appealed matter. Upon remand, the local agency may modify the permit or approval and resubmit the matter for review to the Commission. The permit or approval shall not be effective until the Commission adopts written findings based on substantial evidence in the record that the permit or approval is consistent with the regional plan and the approved local General Plan.

5. Sunset. The current legislation will "sunset" or cease to exist on January 1, 1997.

C. Development of Long-Term Implementation of Goals of Delta Protection Act of 1992

1. Study Alternatives for Long-Term Implementation. The Commission should consider holding a workshop and public hearing on the "tool box" of alternatives described in the Background Report on Implementation, prepared for the Commission by the Attorney General's office. The ranges of alternatives set out in the report include: sunset, extension of the existing legislation, creation of a different commission with a mission to carry out the goals of the original act, and other alternatives.

2. Prepare Goals for New Legislation. If the Commission develops concepts for future legislation, adopt materials to forward to the Governor and the Legislature. Legislation to be enacted prior to the

January 1, 1997 sunset date would need to be submitted in late 1995 for consideration during the 1996 session of the Legislature.

D. Recommendations

1. Establish the Delta Plan as the regionwide policy to preserve, protect, enhance, and restore Delta resources. Because the Delta is a unique and valuable resource area in which all the people of the State have a substantial and continuing interest, and because the wise use, conservation and enhancement of the Delta natural resources are of great concern to the people of

California, it should be the policy of the State to recognize, preserve, protect and, where possible, enhance the resources of the Delta for the use and enjoyment of current and future generations.

2. Ensure the actions of the five Delta Counties, and other local governments proposed work in the Primary Zone, are consistent with the Delta Plan. The local governments are charged with regulatory authority in the Delta. Those regulatory responsibilities should be carried out in conformity with the Delta Plan. Should Cities propose to expand into the Delta Primary Zone, or acquire land in the Primary Zone for utility or infrastructure facility development, those actions should be carried out in conformity with the Delta Protection Act of 1992.

3. Continue to give the local governments with jurisdiction in the Delta Primary Zone responsibility for carrying out the Delta Plan through an amended County General Plan. Once the Plan has been adopted and the local governments have reviewed their General Plans for consistency with the Plan and amended the General Plans, the local governments should have primary responsibility for carrying out the Delta Plan.

4. Continue limited State responsibility for carrying out the Delta Plan through the appeal authority of the Delta Protection Commission. The Delta Protection Commission should continue to exercise its appeal authority over local government activities as delineated in the Delta Protection Act of 1992.

5. Develop a monitoring data base to review progress in achieving the objectives of the Delta Protection Act of 1992. The data base will provide information needed to evaluate the effectiveness of the regional plan in preserving agricultural lands, restoring Delta habitat, improving levee protection and water quality, and providing increased public access and recreational opportunities. This information must be provided to the Governor and Legislature as part of the annual reports which must be submitted starting January 1, 1995.

[Back to Main](#) - [About](#) - [Commissioners](#) - [Meeting](#) - [Recreation](#) - [Atlas](#) - [Economic Report](#) - [Links](#) - [Annual Reports](#) - [Act](#)

[Back to Primary Zone Plan](#)

Primary and Secondary Zones

