State of California
THE RESOURCES AGENCY
Department of Fish and Game
Bay-Delta Project

Testimony on Wildlife in the Sacramento-San Joaquin Delta for the State Water Resources Control Board's Bay-Delta Hearing

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THE SACRAMENTO-SAN JOAQUIN DELTA

Introduction

The Sacramento-San Joaquin Delta (Delta) is an area totaling approximately 738,000 acres and is bordered generally by the cities of Sacramento on the north, Stockton on the east, Tracy to the South, and Pittsburg to the west (Figure 1). Located at the confluence of the Sacramento and San Joaquin Rivers it includes 700 miles of meandering channels with a water surface of 50,000 acres (DFG and DWR 1962). Approximately 450,000 acres of the Delta are in a mosaic of nearly 60 islands created by reclamation efforts following the enactment of the Federal Swamp and Overflow Act of 1850 (DFG and USFWS 1980). Most of these islands are intensively farmed. The Delta also contains an estimated 7,000 acres of shrub-brush and woodland riparian and an additional 7,000 acres of freshwater marsh. The remainder of the Delta is composed of 44,000 acres of upland and 31,800 acres of urban areas with the balance in agriculture. For the purposes of this testimony, those portions of Van Sickle and Chipps islands that are within the legal definition of the Suisun Marsh (Marsh) will be covered by testimony on the Marsh.

The Delta supports over 230 species of birds and 43 species of mammals. Seven species of birds are listed as threatened or endangered and 2 listed as federal candidates for listing (Table 1). Seven species of plants are listed and six are candidates for

FIGURE 1

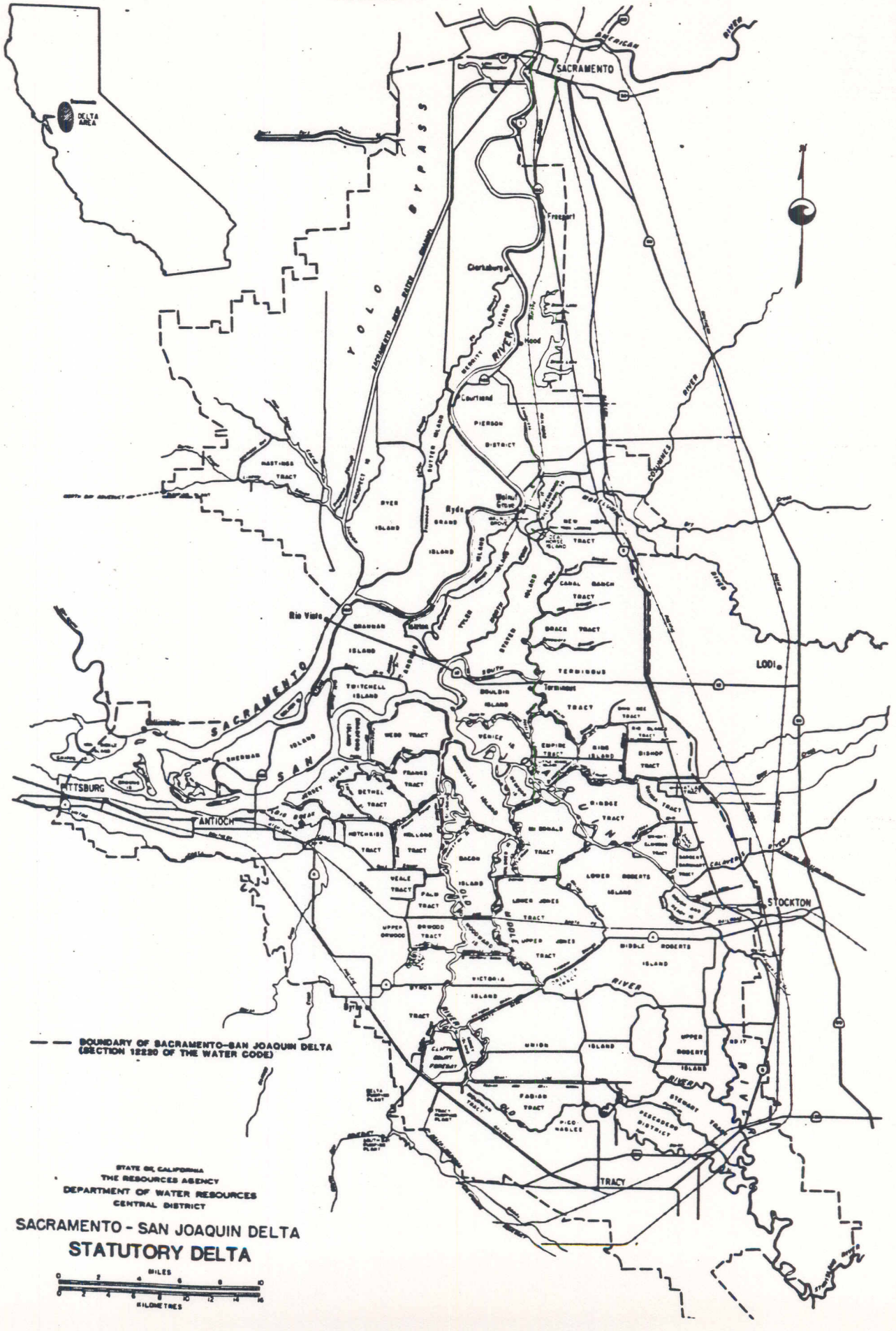
DELTA AREA
SACRAMENTO
AMERICAN RIVER
DELTA CROSS CHANNEL
Freeport
Clarksburg
Hood
Courtland
PIERSON DISTRICT
Ryde
Walnut Grove
Rio Vista
LODI
Terminous
TRACT
ISLAND
SACRAMENTO
SAN
ANTIOCH
STOCKTON
TRACY
RIVER
BOUNDARY OF SACRAMENTO-SAN JOAQUIN DELTA (SECTION 12220 OF THE WATER CODE)
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT
SACRAMENTO - SAN JOAQUIN DELTA
STATUTORY DELTA
MILES
KILOMETRES

TABLE 1

Listed or Candidate Plants and Animals in the Delta

Birds

Species	Status
Aleutian Canada goose	FE
Tule white fronted goose	FC
Swainson's hawk	ST
Bald eagle	SE, FE
Peregrine falcon	SE, FE
Greater sandhill crane	ST
Black rail	ST
Yellow-billed cuckoo	ST
Tricolored blackbird	FC

Mammals

Riparian brush rabbit	FC
Riparian Woodrat	FC

Reptiles

Giant garter snake	ST

Plants

Species	
Delta tule pea	FC
Mason's lilaeopsis	SR
California hibiscus	FC
Crampton's orcuttia	FE,SE
Bolander water hemlock	FC
Contra Costa baeria	FC
Slough thistle	FC
Delta coyote thistle	SE,FC
Contra Costa wallflower	FE
Antioch dunes evening primrose	FE,SE
Caper-fruited tropidocarpum	FC
Colusa grass	FE
Palmate-bracted birds beak	FE

Invertebrates

Lange's metalmark butterfly	FE
Delta green ground beetle	FT
Valley elderbery longhorn beetle	FT

S = State F = Federal T = Threatened E = Endangered
R = Rare C = Candidate

listing. The Delta is noted for its waterfowl resources and is a major wintering area for shorebirds and ducks and geese of the Pacific Flyway.

Wildlife in the Delta are supported by five main habitat types, freshwater marsh, open water aquatic habitats, riparian, agriculture and upland. The freshwater marsh and riparian habitats support the highest diversity of plant and wildlife species. The agricultural areas support the highest numbers of wildlife, principally waterfowl during the winter months when these areas are flooded. The viability of the wetland and riparian habitats depend on the quality of water provided throughout the Delta. The value of the agricultural areas depends on the quality and availability of water to first grow the more desireable crops such as corn and other grains and second to seasonally flood these areas for weed and insect control, leaching of accumulated soil salts and waterfowl hunting. Decreased releases through the Delta could result in an increase in ocean derived salinities that may adversely affect the ability of farmers to grow crops important to wintering waterfowl. Increased salinities could also adversely impact riparian and freshwater marsh vegetation particularly in the western Delta as conditions became more brackish. In addition to potential problems associated with increased salinity, reducing or eliminating the availability of water to be diverted by farmers in the early fall through late winter would severely reduce the value of the Delta to wintering waterfowl.

Importance of the Delta to Wildlife

Although nearly 75% of the Delta is intensively farmed, it still supports a wide variety of birds. Game species such as Ring-necked pheasant (Phasianus colchicus) and mourning dove (Zenaida macroura) are abundant on many Delta islands, generally utilizing unflooded grain fields. The Delta supports waterfowl nesting particularly by species such as Mallard (Anas platyrhynchos) and Cinnamon teal (Anas clypeata). Song birds such as Brewer's blackbirds (Euphagus cyanocephalus). Western meadowlarks (Sturnella neglecta) and Savannah sparrows (Passerculus sandwichensis) are examples of the species resident on these islands. Vegetated levees, adjacent riparian areas, and berm islands in nearby channels containing freshwater marsh provide the essential cover that allows these cultivated areas to support a wide variety of wildlife, particularly in the fall and winter months when cover is limiting. Raptors such as the American kestrel (Falco sparverius), Northern harrier (Circus cyanus), and Black-shouldered kite (Elanus caeruleus) are also common, feeding on insects and rodents in agricultural areas. The Swainson's hawk (Buteo swainsoni), state listed threatened, also uses Delta islands as foraging areas and the riparian fringes as nesting habitat.

While the Delta supports large populations of a wide variety of wildlife year-around, there are significant additional values to wintering wildlife. Most of these values fluctuate depending on the particular agricultural practices being used on given Delta

islands. The Delta begins to become important to wintering wildlife as a foraging area in the late summer and early fall when some farmers flood early to help control weeds and centipedes. Thousands of shorebirds such as Greater yellowlegs (Tringa melanoleuca) and Long-billed dowitchers (Limnodromus scolopaceus) and early arriving waterfowl feed in these briefly flooded shallow areas. Many Delta islands are also flooded in the fall and winter to help leach salts that accumulated during the previous year's irrigation season. Portions of some islands are also flooded to support waterfowl hunting activities. Other areas become flooded when rains or seepage are allowed to accumulate without being pumped. A wide variety of waterfowl and shorebirds use these flooded areas during the fall, winter and early spring months. Northern pintail (Anas acuta), mallard, tundra swan (Cygnus columbianus), and white-fronted goose (Anser albifrons) are just a few of the waterfowl species. The shorebirds already described along with long-billed curlew (Numenius americanus), western sandpiper (Calidris mauri), and others also use these flooded fields concentrating in the shallower areas. The Delta supports nearly ten percent of all the waterfowl wintering in California. Based on the annual mid-winter waterfowl inventory for the years 1970 through 1979, the Delta supported between 450,000 and 600,000 waterfowl. Individual census flights have recorded over one million waterfowl in the Delta at one time. Approximately six percent of all waterfowl in the Pacific Flyway depend on the Delta for wintering habitat. Tundra swans are particularly dependent on the Delta. Biologists estimate that 73 percent of all tundra

swans and over one third of all white-fronted geese in the Central Valley winter in the Delta. Unflooded winter grain crops provide forage to Snow geese (Chen caerulescens) and white-fronted geese in late winter. This habitat is critical to these two species for increasing fat reserves and improving general body condition in preparation for the return migration to Alaskan and Canadian breeding grounds. The Delta provides a critical component in California's matrix of winter waterfowl habitat. The Delta works synergistically with the Suisun Marsh to the west, the grasslands to the south, and other central valley areas to the north to provide wintering habitat for nearly two thirds of all waterfowl in the Pacific Flyway.

In addition to the Swainson's hawk, permanent pasture lands as well as flooded and unflooded grain fields located in the Delta support the state-listed, threatened, Greater sandhill crane (Grus canadensis tabida). The federally listed, endangered, Aleutian Canada goose (Branta canadensis leucopareia) also uses the Delta islands during its migration to traditional wintering sites in the northern San Joaquin Valley.

The Delta also supports a diverse assemblage of mammals. Small rodents are by far the most abundant and provide a substantial prey base for raptors using the Delta. Other common species include the striped skunk (Mephitis mephitis), Virginia opossum (Didelphis virginiana), and black-tailed hare (Lepus californicus). Beaver (Castor canadensis) are frequently found using agricultural drainage ditches, and Delta channels and share

these channels with muskrats (Ondatra zibethicus) and river otter (Lutra canadensis).

Water Availability and Quality Needs of Wildlife in the Delta

The use of water of adequate quality to grow grain crops such as corn provides a benefit far beyond the use based on agricultural economics. As previously described, the farming techniques employed and waste grain remaining after the harvest provide critical wintering habitat and food for waterfowl in the Pacific Flyway. These values to wildlife should be taken into consideration when determining the beneficial uses of water in the Delta. Water of adequate quality to meet agricultural needs should be made available to not only grow the crops described above but to flood the harvested fields for the purposes of weed and centipede control, soil salinity reduction, and waterfowl hunting. Meeting the current agricultural water standards in the Delta will essentially meet the needs for wildlife in the Delta. Beyond this recommendation, water salinity requirement data are limited. Past research has indicated that water with salinities above 5.5 mmhos EC are toxic to young pheasants and quail (Griffith 1963). In addition, salt intoxication of mallards was found during the fledgling period that resulted in losses beginning with a water salinity of 1.6 mmhos EC and 100 percent mortality above 2.3 mmhos EC (McFarland, undated). Successful

waterfowl nesting in the Delta would, therefore, require water fresher than these salinities from March through mid-summer.

Water Quality Needs of Rare Plants in the Delta

Several rare plant species are expected to be of concern with regards to water qualities in the Delta. Mason's lilaeopsis (Lilaeopsis masonii), Suisun aster (Aster chilensis lentus), and Delta tule pea (Lathyrus jepsonii jepsonii) can be adversely impacted by high water salinities but they are all found in the brackish waters of the Suisun Marsh. Since salinities in the Delta, including the western Delta near Sherman island, are expected to be significantly fresher than those salinities existing in the Suisun Marsh no significant impacts are expected. The California hibiscus (Hibiscus californicus) requires signficantly fresher water but its needs are expected to be less stringent than the agricultural needs in the Delta. The remainder of the plants listed in Table 1 will not be directly impacted by water quality standards adopted by the SWRCB.

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