



# Central Valley:

## LOW STREAMFLOWS THREATEN WATERFOWL

California's Central Valley is an important winter getaway for waterfowl, despite the fact that more than 95 percent of the Central Valley's wetlands have been destroyed or highly modified.<sup>75</sup> With over 205,000 acres of managed wetlands, as well as dry grain fields, flooded rice fields, and tule-reed and cattail marshes, 60 percent of the migratory waterfowl of the Pacific Flyway choose to stop over or spend the winter in the region. That is 5.5 million ducks and geese, still one of the largest concentrations of wintering waterfowl in the world.<sup>76</sup>

Fortunately, many of the remaining wetland patches in the Central Valley are protected in State Wildlife Management Areas and Federal National Wildlife Refuges, through private duck clubs, or conservation easements, most of which are managed primarily for wildlife. Nonetheless, the future for waterfowl in the Central Valley is uncertain. Ducks Unlimited lists this region as the second most important and threatened waterfowl habitat in the country.<sup>77</sup>

Global warming threatens to further



Dick Overstreet



U.S. Fish and Wildlife Service

**The Merced National Wildlife Refuge provides important habitat for lesser sandhill cranes, Ross's geese, northern pintails, cackling geese, and a wide variety of shorebirds.<sup>83</sup>**

**"Any California waterfowler who has spent the last twenty years in a duck blind is well aware of how early December's cold streaks were practically clockwork, along with huge clouds of green-winged teal. Most hunters in the Central Valley will now tell you that such conditions don't seem to arrive until far later in the winter, and have been replaced with balmy shooting days that hardly require a jacket. What used to 'turn on' in the first week of December seems to now be occurring in January, and the traditional migratory push from northern California climates to the Central Valley seems to be more sluggish.**

**Then there are the impacts on California's water. If we don't get serious about global warming, it will become extraordinarily difficult to provide for the needs of both wintering migratory waterfowl and resident wildlife, not to mention wildlife food production in the spring and summer."**

### **DAVID L. WIDELL**

*General Manager and Director of Governmental Affairs, Grassland Water District, and an avid hunter (pictured with his son Ty Widell)*



U.S. Fish and Wildlife Service

California's Central Valley is wintertime habitat for all of the world's Aleutian cackling geese and Tule White-fronted geese, 80 percent of the continent's Ross's geese, 33 percent of the continent's tundra swans and Pacific white-fronted geese (pictured here), and 80 percent of the Pacific Flyway's northern pintail ducks.<sup>84</sup>

diminish waterfowl habitat in the Central Valley by changing water availability and seasonality, thereby increasing competition from agriculture and urban water uses.<sup>78</sup> At risk is the habitat of resident species—such as the mallard, cinnamon teal, gadwall, and wood duck—that require access to permanent water bodies,<sup>79</sup> as well as those waterfowl that overwinter in the region.

Because wildlife refuges in the Central Valley often depend on return flows from agriculture,<sup>80</sup> they are anticipated to lose supplies as the rising price of limited water supplies provides an incentive to transfer agricultural water to urban areas. The winter waterfowl habitat provided by flooded rice fields in the Central Valley faces similar pressures. Greater competition for water will likely raise irrigation costs for rice farmers.<sup>81</sup> In addition, higher summer temperatures could reduce rice yields and increase rice sterility, further decreasing the

profitability of rice farming in California.<sup>82</sup> These factors, combined with a growing human population, may cause land to be taken out of agricultural production, where it provides at least some habitat value, and converted into urban environments, with little or no habitat value.

### Birdwatching at San Luis National Wildlife Refuge.



U.S. Fish and Wildlife Service

## WILL THERE BE CHINOOK IN THE CENTRAL VALLEY?

Historically, up to 600,000 spring-run Chinook salmon inhabited 6,000 river-miles in the Central Valley, including the Sacramento River as far as Mount Shasta City and Fall River. The San Joaquin River supported a population of 50,000 to 200,000 spring-run Chinook. However, water diversions and dams eliminated spring-run Chinook in the San Joaquin River, and by 1997, Central Valley populations had declined to less than 1 percent of historic levels, with only 20 percent of historic habitat still accessible. Today, all Chinook runs are limited to about 300 river-miles, mostly in the main stem of the Sacramento River.<sup>85</sup>

Global warming is a major long-term threat facing Central Valley salmon, including all runs of Chinook.<sup>86</sup> Warming will shorten the period when fall-run Chinook have access to sufficiently cool habitats, particularly affecting fish in the San Joaquin River and its tributaries.<sup>87</sup> Winter- and spring-run salmon, already the most harmed by dams, are especially likely to be affected by global warming because they depend on rivers and streams for rearing habitat in the warm summer months.<sup>88</sup> If air temperatures rise 3.6 degrees Fahrenheit, the Tuolumne and Merced Rivers and Butte Creek will become too warm for spring-run Chinook.<sup>89</sup> If air temperatures rise about 9 degrees Fahrenheit, expected if global warming pollution continues unabated, it is doubtful whether any Central Valley Chinook will be able to survive.<sup>90</sup>

The 2008 collapse of the Sacramento River's fall-run Chinook is a testament to the instability and vulnerability of Central Valley Chinook. Although it is not yet known what specific conditions caused the collapse, scientists have implicated insufficient river flow and disruptions in marine food sources caused by warm ocean waters.<sup>91</sup> Such threats to salmon populations and fishing will be more frequent with global warming.



Tom Weseloh



## Sacramento-San Joaquin Delta:

### ENCROACHING SEAS AND ALTERED FRESHWATER INFLOWS

Fish and waterfowl flourish in coastal estuaries where freshwater flows into the ocean. Fortunately for wildlife enthusiasts, California is home to the largest estuary on the west coast of North and South America: the Sacramento-San Joaquin Delta. Located just east of the San Francisco Bay area where California's two largest rivers converge, the Delta is comprised of more than 700,000

acres of waterways, wildlife habitat, reclaimed farmland, and agricultural towns. Tens of thousands of waterfowl use freshwater areas of the Delta as important resting, feeding, and breeding habitat in their migration along the Pacific Flyway.<sup>92</sup> Over 40 fish species live or pass through the Delta, including catfish, sturgeon, steelhead, and striped bass.<sup>93</sup>

These conditions, coupled with the

Delta's proximity to large urban population centers, provide some of the best access to hunting and fishing opportunities in the western United States. The Delta's Suisun Marsh area alone is home to 158 private duck clubs as well as public hunting areas.<sup>94</sup> In 2000, visitors made approximately 2.13 million boating trips through the hundreds of miles of lazy sloughs and channels of the Delta.<sup>95</sup>