

RESEARCH

Estuarine Habitat Use by White Sturgeon (*Acipenser transmontanus*)

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ABSTRACT

White Sturgeon (*Acipenser transmontanus*), a species of concern in the San Francisco Estuary, is in relatively low abundance because of a variety of factors. The purpose of our study was to identify the estuarine habitat used by White Sturgeon to aid in the conservation and management of the species locally and across its range. We seasonally sampled sub-adult and adult White Sturgeon in the central estuary using setlines across a habitat gradient representative of three primary structural elements: shallow wetland channel (mean sample depth = 2 m), shallow open-water shoal (mean sample depth = 2 m), and deep open-water channel (mean sample depth = 7 m). We found that the shallow open-water shoal and deep open-water channel habitats were consistently occupied by White Sturgeon in spring, summer, and fall across highly variable water quality conditions, whereas the shallow wetland channel habitat was essentially unoccupied. We conclude that sub-

adult and adult White Sturgeon inhabit estuaries in at least spring, summer, and fall and that small, shallow wetland channels are relatively unoccupied.

KEY WORDS

White Sturgeon, *Acipenser transmontanus*, Habitat, estuary, wetland, conservation, restoration

INTRODUCTION

Sturgeons are large, long-lived fishes that grow and mature slowly, ranging throughout North America, Europe, and Asia (Birstein 1993; Pikitch et al. 2005). Currently, there are 25 recognized species in four genera (Birstein 1993; Auer 1996; Bemis and Kynard 1997; Billard and Lecointre 2000; Pikitch et al. 2005). Sturgeons have historically been the dominant large fish species in large rivers in the Northern Hemisphere; they are highly valued for consumption of their flesh and roe, and are gaining appreciation as charismatic megafauna (Chapman et al. 1996; Pikitch et al. 2005; He et al. 2018). Collectively, sturgeons are considered one of the most highly imperiled groups of animals, with 85% of species at risk of extinction according to the International Union for Conservation of Nature (IUCN c2020). Over-harvest, various forms of habitat loss

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