

SEX STEROID LEVELS IN COLUMBIA RIVER WHITE STURGEON

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Successful management of white sturgeon (*Acipenser transmontanus*) in the Columbia Basin requires increased efforts to understand the reproductive health of sturgeon populations. As the populations of chinook salmon have declined in the Columbia forcing greater restrictions on harvest, interest in recreational sturgeon fishing has soared, presenting state and federal agencies with a challenge to understand basic reproductive parameters in this species in order to better estimate the productivity, potential yield, number of broodstock, reproductive success in different parts of the basin, and the effectiveness of transfer programs. Efforts have been made to assess maturity and identify sex in wild white sturgeon. Currently, biologists perform surgery on sturgeon sampled in the field to examine the gonads for determination of sex and estimation of reproductive status. This procedure is difficult to perform and the accuracy of the results is limited due to the very small gonads in non-reproductively active individuals, which can lead to misidentification of the sex or biopsying the wrong tissue. A simple, fast procedure for determining sex and maturity of white sturgeon would benefit agency biologists by allowing for a more accurate assessment of population status and future reproductive potential of white sturgeon. The objective of this study was to determine if plasma sex steroid levels can be used for distinguishing between sexes and maturity status in wild white sturgeon.

Adult white sturgeon were sampled after harvest near Astoria, Oregon in February 1996. From each of 31 individuals, blood was sampled for plasma preparation and the sex identified by examination of the gonads. Plasma levels of testosterone (T), 11-ketotestosterone (KT), and estradiol (E2) were assayed by radioimmunoassay. Plasma levels of T or KT greater than 3 ng/ml were only found in males; whereas levels less than 3 ng/ml were found mostly (but not exclusively) in females (Fig. 1). Levels of E2 were low in all fish samples, regardless of sex.

