Utilizing PIT-tag Technology to Monitor a Population of Long-lived Fish Species in the Hell's Canyon Reach of the Snake River, Idaho

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The Hell's Canyon Reach of the Snake River contains one of the most robust population of White sturgeon, *Acipenser transmontanus*, found in Idaho. PIT-tagging has been used as a method for understanding growth, movement, and population dynamics within the population since 1991. PIT-tag technology has changed significantly since the initial tagging efforts occurred within this population. A variety of tag technologies have been used including 400, 125, and 134.2 kHz tags from both Avid and Destron Fearing. Given the late age at maturity (25-40 years) and expected life span (100 yrs +) for some individuals; the entire suite of tag technologies are still active within the population. Tracking the use of different technologies as well as different tagging efforts among various agencies has presented a unique challenge. Researchers have chosen to utilize improvements in PIT-tag technology and some individuals in the population now carry two or three tags. Linking old technology with new technology has presented a challenge for data management. Unsuccessfully detecting multiple PIT-tags associated with an individual fish could result in a loss of 20 plus years of data; some research personnel have carried three different PIT-tag readers to scan for different tag technologies. Even with the challenges, PIT-tags have proven to be an invaluable tool in describing sturgeon population dynamics within this population. The ability to mark and recapture unique individuals from the population has been instrumental in establishing growth rates in a fish with unreliable aging structures especially for older aged fish. PIT-tags have proven to be effective "long-term tags" with 15-20 year old PIT-tags still being read and utilized by current projects. Externally marking white sturgeon in this reach (through scute removal) when PIT-tagging has shown that PIT-tag retention rates on recaptured white sturgeon is quite high at nearly 98%. We hope to expand the work in the next few years to utilize PIT-tags for mark-recapture population estimates and integrate Hell's Canyon White Sturgeon data from multiple agencies into the PTAGIS database for participating agencies to collaborate and track the population.