
Record of an Angler-Caught Blue Crab in Oklahoma

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The Oklahoma Department of Wildlife Conservation (ODWC) is often contacted by constituents or members of the general public that report wildlife observations or to have a species they caught identified. These reports often describe fish or wildlife species that are uncommon or are commonly occurring species that are misidentified. However, occasionally these claims are so bizarre they require further investigation. This was the case on July 7, 2020, when ODWC was contacted by a catfish angler who claimed to capture a large Blue Crab (*Callinectes sapidus*) in the tailwater below Overholser Reservoir, Oklahoma (Figure 1). The angler was asked if he could provide photographs for confirmation to identify the Blue Crab (Figure 2). Inspection of the

photographs confirmed the angler caught a Blue Crab and he was asked to maintain the specimen for collection of scientific information. Upon taking possession of the Blue Crab, it was measured for carapace width and length (nearest mm), weight (g), and determined sex. Carapace width was measured as the distance between the tips of the posterior most lateral carapace spines and length was measured dorsally along the midline, between the frontal notch and the posterior margin of the carapace (Josileen 2011). The Blue Crab had a carapace width of 172 mm and length of 80 mm and weighed 170 g (Figure 3). Based on the shape of the apron and red coloration of the tips of the claws, this Blue Crab was identified as a mature female (Baldwin and Johnsen 2009).



Figure 1. Aerial photograph of the Overholser Reservoir tailwater detailing the Blue Crab capture location (x) and crab pot sampling sites (■).



Figure 2. Photographs taken by the angler and provided to ODWC for identification of the Blue Crab.

To determine if this was an isolated event, Blue Crabs were sampled in the tailwater below Overholser Reservoir using 6 crab pots (72 cm x 72 cm x 30.5 cm) baited with cut sunfish *Lepomis* sp. and Gizzard Shad (*Dorosoma cepedianum*) (Figure 1). However, no Blue Crabs were captured during this sampling effort. Further, ODWC has not received any additional reports of Blue Crabs being captured or observed in the tailwater of Overholser Reservoir or in surrounding tributaries.

It is impossible to know exactly how a Blue Crab entered this system, however we propose some possible explanations. First, this Blue Crab was captured from a waterway in Oklahoma City. It is possible that Blue Crabs were purchased at a live seafood market in the city, more were purchased than could be consumed, and the buyer decided to release the live Blue Crabs into a local waterway. Additionally, Blue Crabs could have been brought back during a vacation as a pet and released. Perhaps the more likely scenario, is that this Blue Crab may have been a bait bucket release resulting from an angler using Blue Crabs as fishing bait. Recent studies have documented the consumption of Blue Crabs by Blue Catfish (*Ictalurus furcatus*; Schmitt et al. 2019a, Schmitt et al. 2019b). Bait bucket introductions have resulted in establishment of many aquatic species in areas where they are not native (Moyle 1973, Ludwig 1995, Killian et al. 2012, Drake and Mandrak 2014).

The capture of a Blue Crab from an
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Oklahoma water body is unique and unexpected observation, and therefore is the first report of this species in the state to our knowledge. Although Blue Crabs can reproduce and survive in water quality conditions similar to those in the river below Overholser Reservoir (salinity = 0.4 – 0.5‰; Eggleston et al. 2009, Roy et al. 2012), the risk of establishment is relatively low due to their complex early life history (Jivoff et al. 2007), life expectancy (3–4 years; Hewitt et al. 2007) and intolerance to low water temperature (high mortality of mature females at water temperatures <5°C; Johnson 2015).

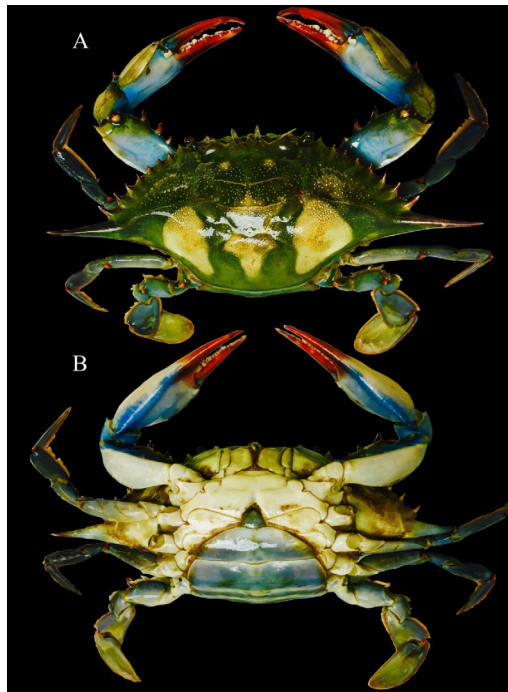


Figure 3. The photographs illustrate a dorsal (A) and ventral (B) view of a female Blue Crab caught in the Oklahoma River below Overholser Reservoir.

References

- Baldwin, J., and S. Johnsen. 2009. The importance of color in mate choice of the Blue Crab (*Callinectes sapidus*). *The Journal of Experimental Biology* 212:3762-3768.

- Drake, D. A., and N. E. Mandrak. 2014. Bycatch, bait, anglers, and roads: quantifying vector activity and species introduction risk across lake ecosystems. *Ecological Applications* 24:877–894.
- Eggleston, D. B., G. Plaia, and H. Daniels. 2009. Blue Crab stock enhancement: further progress in freshwater pond rearing. Final Report to the North Carolina Blue Crab Fishery Grant Program, 07-STOK-01, Raleigh.
- Hewitt, D. A., D. M. Lambert, J. M. Hoenig, R. N. Lipcius, D. B. Bunnell, and T. J. Miller. 2007. Direct and indirect estimates of natural mortality for Chesapeake Bay Blue Crab. *Transactions of the American Fisheries Society* 136:1030–1040.
- Jivoff, P. R., Hines, A. H. and Quackenbush, L. S. 2007. Reproductive biology and embryonic development. Pages 255-298 In: *The Blue Crab Callinectes sapidus* (ed. V.S. Kennedy and L. E. Cronin), College Park: Maryland Sea Grant.
- Johnson, D. S. 2015. The savory swimmer swims north: a northern range extension of the Blue Crab (*Callinectes sapidus*)? *Journal of Crustacean Biology* 35:105-110.
- Josileen, J. 2011. Morphometrics and length-weight relationship in the Blue Swimmer Crab, *Portunus pelagicus* (Linnaeus, 1958) (Decapoda, Brachyura) from the Mandapam Coast, India. *Crustaceana* 84:1665-1681.
- Ludwig Jr., H. R. 1995. Bait bucket transfer potential between the Mississippi and the Hudson Bay watersheds. Master's thesis. North Dakota State University, Fargo.
- Moyle, P. B. 1973. Ecological separation among three species of minnows (Cyprinidae) in a Minnesota lake. *Transactions of the American Fisheries Society* 102:794-805.
- Roy, L. A., G. N. Whitis, and W. C. Walton. 2012. Demonstration of Blue Crab culture in inland low-salinity waters of west Alabama. *North American Journal of Aquaculture*. 74:453-456.
- Schmitt, J. D., B. K. Peoples, A. J. Bunch, L. Castello, and D. J. Orth. 2019a. Modeling the predation dynamics of invasive Blue Catfish (*Ictalurus furcatus*) in Chesapeake Bay. *Fishery Bulletin* 117:277-290.
- Schmitt, J. D., B. K. Peoples, L. Castello, and D. J. Orth. 2019b. Feeding ecology of generalist consumers: a case study of invasive Blue Catfish *Ictalurus furcatus* in Chesapeake Bay, Virginia, USA. *Environmental Biology of Fishes* 102:443-465.

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