

BIOLOGICAL OPINION

**Effects of the Milltown Dam and Reservoir Project
on the Eastern Redbelly Turtle (*Pseudemys rubriventris*)
Chester County, Pennsylvania**

Species Impact Review #46924

May 2, 2017

**Pennsylvania Fish and Boat Commission
Division of Environmental Services
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823**

BIOLOGICAL OPINION OF THE PENNSYLVANIA FISH & BOAT COMMISSION:

DESCRIPTION OF THE PROPOSED ACTION

The Milltown Reservoir is on the property of East Goshen Township, Chester County, Pennsylvania. It is formed by the Milltown Dam on the East Branch of Chester Creek. The East Goshen Township is proposing reclassification of the Milltown Dam that will result in elimination of the permanent pool of the Milltown Reservoir. The Township proposes a phased drawdown of the reservoir from May to September, 2017. The project will result in approximately 12 acres of permanent habitat disturbance associated with dewatering of the reservoir.

SPECIES OF CONCERN AND EFFECTS OF THE ACTION

In a PNDI submission dated November 13, 2016, contact with the Pennsylvania Fish and Boat Commission (PFBC) was initiated for the review of potential impacts to rare, candidate, threatened, or endangered species from the proposed drawdown (PNDI Search ID 614335_2). The state threatened Eastern Redbelly Turtle (*Pseudemys rubriventris*) was identified by the Commission as a potential conflict with the proposed project in a response letter on November 30, 2016. The Eastern Redbelly Turtle had been discovered in the lake in 2015 during general inventory surveys in the area by the PA Fish and Boat Commission. Given that presence of the state threatened species in the project area was already established, and the proposed activities at the lake would likely result in some level of “take” of the species, the Commission responded with a request for more project details.

The Eastern Redbelly Turtle is one of Pennsylvania’s largest native aquatic turtles. This turtle species is known to inhabit relatively large, deep streams, rivers, ponds, lakes, and marshes with permanent water and ample basking sites. Redbelly Turtles are restricted to the southcentral and southeastern regions of the Commonwealth. The existence of this turtle species is threatened by habitat destruction, poor water quality, and competition with aggressive non-native turtle species that share its range and habitat (e.g., Red-eared Slider, *Trachemys scripta elegans*).

Redbelly Turtle females deposit eggs in nests dug on land primarily from May to July. The number of eggs can vary from 8 to 35 depending on body size of the female. Most hatchlings emerge in late summer, but some remain in the nest to overwinter and emerge in early spring. High rates of nest predation are known to occur, but the nest success rates and emergence times for Redbelly Turtles in Pennsylvania are not well known.

DuBois Environmental Consultants provided rough visual survey results and a proposed salvage plan (DuBois, 2017). The number of Eastern Redbelly Turtles occupying the lake is unknown from prior visits. In June 2015, Kathy Gipe of the PFBC noted 12 Eastern Redbelly Turtles basking both above and below the spillway at the Milltown Reservoir. Bryon DuBois reported observing roughly 6 Eastern Redbelly Turtles on a similar visit. Other species observed in the reservoir included Painted Turtles (*Chrysemys picta*) and Red-eared Sliders. Few tools are available to estimate population size from observational surveys, but they are known to significantly underestimate local population sizes. Jones and Hartfield (1995) compared observations of basking riverine Ringed Map Turtles (*Graptemys oculifera*) to mark-recapture population estimates, and found that from 8-10% of the estimated population were observed basking, though subject to high level of variability between sites. In a similar project of

much greater scale, DuBois (2016) trapped 123 Eastern Redbelly Turtles out of a 14 acre lake in 2015 after observing an average of 38.5 during four basking surveys (31%). Because no standardized basking surveys were conducted at the Milltown Reservoir, we do not have a similar parameter on which to base a population estimate, though using the observation data from one day we can estimate 38-120 Eastern Redbelly Turtles. Given the shallow condition of much of the reservoir (depths do not exceed 5 feet, according to Gannett Fleming), we believe that the population in this lake is most likely on the smaller end of the potential range: from 12-40 Eastern Redbelly Turtles.

Dewatering of the Milltown Reservoir would be expected to displace all occupying Eastern Redbelly Turtles from their habitat. Additionally, displaced turtles will likely be more susceptible to threats such as roadkill and lower habitat quality. Milltown Reservoir is immediately surrounded by busy roads on three sides, with the nearest impounded habitat over a kilometer away. Numerous studies have shown that a high percentage of displaced turtles make attempts to return to home ranges (Ernst 1968, Carroll and Ehrenfeld 1978, Lebborini and Chelazzi 2000) or have greater movements and potential mortality than resident turtles (Hester et al. 2008).

No nesting areas are expected to be altered by the proposed project, though the turtles will be removed from any accustomed onsite nesting habitats. The proposed timing of construction allows for hatchlings to emerge from nests prior to drawdown.

CONCLUSION – BIOLOGICAL OPINION

Chapter 75.4 (1) (i) authorizes the PFBC to make determinations regarding the continued existence of a listed threatened and endangered species within Pennsylvania. It is the Biological Opinion of the PFBC, that the proposed project will have no demonstrable adverse impacts on the population of the Eastern Redbelly Turtle within the Commonwealth. This determination is based on the likely severity of species take following an analysis of the project effects, and is our best professional judgment of the probable likelihood that the proposed project will not result in extirpation of this species within Pennsylvania. In other words, the proposed project is not likely to jeopardize the continued existence of the species within the Commonwealth. We do anticipate some level of species take; however, we do not expect the level of take to adversely impact the local population of Eastern Redbelly Turtle within the Chester Creek watershed.

The PFBC is defining “take” as removing or killing of animals through any means directly or indirectly and in a time frame coincident with (immediate) or delayed following a specific permitted activity. Our take estimates are based on the results of the ad hoc basking survey conducted on the subject property in 2015 and best professional judgment.

Mortality is likely to occur in surrounding urban areas and on roads in reaction to dewatering of the lake. A turtle salvage is required within the Milltown Reservoir to prevent such mortality. As referenced above, there are anywhere between 12 and 120 Eastern Redbelly Turtles present within the direct impact area, as determined by the number of turtles likely to be occupying the site. Given the unknown nature of the existing substrates in the lake, but also the propensity of turtles to move to other suitable habitats when detecting water drawdown (DuBois 2016), salvage efforts can be expected to recover most turtles greater than hatchling size. Therefore, the salvage is likely to relocate up to 120 individual Eastern Redbelly Turtles from the project site; although, as mentioned earlier, we predict that the actual number

of turtles at Milltown Reservoir is much lower than this. Mortality associated with relocation to the nearby habitats is not anticipated, though subsequent mortality may result from turtles not adapting to new habitats or crossing roads in attempts to home to Milltown Reservoir. Hatchling turtles may be undetected based on their size. Given the many uncertainties around the population size, numbers of hatchlings, and behavior of the turtles after relocation, a conservative population estimate of 120 will be used to estimate take. Given the long duration of the drawdown and the availability of relocation sites within the watershed, while accounting for hatchlings and others not able to be salvaged, a final take estimate of 10 Eastern Redbelly Turtles is probable as per our definition (i.e. includes removal and mortality) for the Milltown Reservoir drawdown. However, with the implementation of best management practices designed to avoid and minimize “take”, including the turtle salvage, it is hopeful that *no* Eastern Redbelly Turtles will perish as a result of the project actions. This take estimate may be adjusted by PFBC pending the results of salvage trapping/seining.

SPECIAL PERMIT

This Special Permit allows for “take” of 10 Eastern Redbelly Turtles from the proposed Milltown Reservoir Project. To further avoid and minimize further take associated with the impacts from the proposed project on the Eastern Redbelly Turtle and its habitat, the following *mandatory* permit conditions shall be implemented. These conditions also include mitigation measures to compensate for take of listed species and conservation measures to ensure the long-term protection of the listed species.

Special Permit Conditions

1. **Seasonal Work Restriction and Qualified Eastern Redbelly Turtle Surveyor onsite.** All Eastern Redbelly Turtles shall be removed from the impact area prior to and during complete dewatering. The salvage will be conducted by a qualified Eastern Redbelly Turtle surveyor. The salvage plan shall include installing basking traps and baited hoop net traps for at least 20 days prior to and during the drawdown. During the drawdown, the surveyor will monitor the margins of the lake capture turtles as they emigrate. During the drawdown, if feasible, visual and seine surveys may be used to supplement the removal as the water level is brought down. The qualified surveyor will monitor the site for turtles throughout the drawdown. All Eastern Redbelly Turtles captured will be moved to temporary holding bins and subsequently nearby waterbodies previously approved by the PFBC. The salvage and subsequent drawdown shall be carried out during the active season of the turtle, between April 15 and October 15. Salvage may commence prior to April 15 based on observations of active turtles and the determination of the qualified Eastern Redbelly Turtle surveyor. Eastern Redbelly Turtle Surveyors are to be approved by the Commission, and hold current Scientific Collector Permits, and Threatened and Endangered Species Permits.
2. **Disposition of Captured Animals.**
 - a. All captured non-native species (e.g., Red-eared Sliders and/or other non-native turtles) are not allowed to be released in Pennsylvania’s waterways.
 - b. All native turtle species (non-Redbelly Turtles) captured shall be documented and immediately released in the nearest waterway or waterbody (includes Chester Creek or the identified relocation ponds).
 - c. All Eastern Redbelly Turtles captured will be marked with notches in the marginal scutes, measured, photo-documented, and relocated to nearby waterbodies in accordance with the Redbelly Turtle Capture and Relocation Plan in DuBois (2017). These sites include 1) the Westtown Lake, 2) the Pond at Penns Woods, and 3) temporary holding bins at the site. The PFBC will be consulted if the capacity of the identified relocation sites is deemed to be exceeded or if other relocation sites are considered. Eastern Redbelly Turtles will not be

relocated outside the Chester Creek watershed.

- d. At the conclusion of the relocation efforts, a report must be submitted to the PFBC detailing the results of the salvage, trapping and seining surveys, relocation areas, etc.
3. **Reporting of Dead Listed Species Found on the Project Site.** Any dead specimens of listed species that are found within the project action area shall be clearly photographed and frozen to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the observer has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to Section 2305 of the Fish and Boat Code (Act 1980-175, Title 30). The reporting of dead specimens is required within 24 hours to enable the PFBC to determine if species take is reached or exceeded and to ensure that the permit conditions are appropriate and effective. Upon locating a dead specimen, East Goshen Township or its representatives must notify the Pennsylvania Fish and Boat Commission's Division of Environmental Services, Kathy Gipe (814-359-5186; c-kgipe@pa.gov).
 4. **Consultation Re-initiation Procedures.** East Goshen Township shall reinitiate consultation with the PFBC regarding this project under the following circumstances:
 - a) The amount or extent of take is exceeded;
 - b) New information reveals effects of the proposed project that may affect listed species in a manner or to an extent not considered in this opinion;
 - c) The proposed project is subsequently modified in a manner that causes an effect to the listed species not considered in this opinion;
 - d) In instances where the amount or extent of take is exceeded, any project activities causing such take must cease pending reinitiation.

REFERENCES

Carroll, T. E. and D. H. Ehrenfeld. 1978. Intermediate-range homing in the wood turtle, *Clemmys insculpta*. *Copeia* 1978:117-126.

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Hester, J. M., S. J. Price, and M. E. Dorcas. 2008. Effects of relocation on movements and home ranges of eastern box turtles. *Journal of Wildlife Management*. 72:772-777.

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