BEFORE THE MARYLAND DEPARTMENT OF NATURAL RESOURCES

PETITION TO END UNLIMITED COMMERCIAL HARVEST OF COMMON SNAPPING TURTLES

Common Snapping Turtle (Chelydra serpentine serpentina)
PhotoCourtesy Dakota L.

CENTER FOR BIOLOGICAL DIVERSITY

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Notice of Petition

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Pursuant to State Government Article, Annotated Code of Maryland § 10-123, the Center for Biological Diversity hereby petition the Maryland Department of Natural Resources (“MDNR”) to end the unlimited commercial collection of common snapping turtles in tidal waters in the state. Commercial collection of wild turtles contributes to turtle declines in the state and across the country, intensifying the impacts of water pollution, habitat loss, road mortality and incidental take from fishery devices, which already contribute to population declines in the state and across the country.

The Center for Biological Diversity (“Center”) is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center is supported by over 1.4 million members and online activists throughout the United States, including over 18,000 members and supporters in Maryland. The Center and its members are concerned about the conservation of rare wildlife—including turtles—and their essential habitats.
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I. INTRODUCTION

Turtles are the oldest living group of reptiles on earth, with fossil evidence suggesting they were alive over 200 million years ago. Although turtles thrived on this planet for millions of years, they are now among the most threatened of any major group of vertebrates. Approximately sixty-one percent of all turtles worldwide are threatened or already extinct (Lovich et al. 2018).

Wild collection is the primary driver of turtle declines across the world (Bohm et al. 2013). Overexploitation has caused population declines in almost all turtle species that are now extinct, critically endangered, or rare (Klemens and Thorbjarnarson 1995), and it contributes to population declines also caused by water pollution, habitat loss, road mortality and other threats (Moll and Moll 2004; Schlaepfer et al. 2005). Turtles are beneficial scavengers that feed on water plants, dead animals, snails, aquatic insects and crayfish. Population declines due to overexploitation can cause changes in energy flow, nutrient cycling, and food web structure (Mali et al. 2014).

Maryland is home to 13 native species or subspecies of freshwater turtles (MDNR 2010). Although most of Maryland’s turtle species enjoy protection from wild collection, the state allows unlimited numbers of common snapping turtles of a certain size to be taken from the wild by commercial collectors in tidal waters.¹ Code of Maryland Regs. 08.02.06.01.

Common snapping turtles are wild-caught in large numbers in Maryland and across the country for the food and pet trade. Commercial harvests of turtles in the United States grew to large numbers over the last few decades, as the collapse of turtle populations in Asian countries created a worldwide turtle market (Colteaux and Johnson 2017).

Over 70,000 common snapping turtles were reported to be collected in Maryland over nine years (2008 - 2016) by holders of snapping turtle harvest permits (MDNR 2018a; Colteaux and Johnson 2017). While it appears commercial harvest of turtles in Maryland has decreased in recent years, it is difficult to tell if this is due to a decline in turtle numbers (increasing difficulty of collection), under-reporting of harvest, or a lull in commercial activity. Since many of the commercial turtle harvesters in Maryland trap turtles as a “bridge” between other, larger fisheries, yearly numbers may be impacted by variabilities in other fisheries, as well as variabilities in prices paid by turtle dealers (Cain et al. 2017). While new regulations put into place in Maryland in 2009 have undoubtedly lessened the impact of commercial collection on its common snapping turtle populations, the harvest that remains continues to pose a significant risk to the future of Maryland’s wild freshwater turtle populations.

The Secretary of Maryland’s Department of Natural Resources “may adopt rules and regulations to restrict, permit, or prohibit the catching, possessing, purchasing, transporting, or exporting of snapping turtles” MD Nat Res Code § 4-218 (2013). The Secretary “may modify size limits or open, close, or modify a season by publishing notice in a daily newspaper of general circulation.

¹ Maryland also allows commercial collection of red-eared sliders, an introduced species to the state (Cain et al 2017).
at least 48 hours in advance, stating the effective hour and date.” Code of Maryland Regs. 08.02.06.01(K)(1).

Maryland law provides that “[a]n interested person may submit to a unit a petition for the adoption of a regulation.” Md. Code Ann., St. Gov’t Art. § 10-123(a). Each agency is required to “[w]ithin 60 days after the petition is submitted … (1) in writing, deny the petition and state the reasons for the denial; or (2) initiate the procedures for adoption of the regulation.” Id. § 10-123(b). Pursuant to this authority and for the reasons explained below, the Center requests that the Maryland Department of Natural Resources grant this petition and initiate procedures to adopt a regulation to end unlimited commercial collection of the common snapping turtles within 60 days.

II. BACKGROUND

A. The Commercial Turtle Trade in the U.S.

The United States has the highest richness of turtles in the world, with 89 species and subspecies of turtles (Rhondin & van Dijk 2010; Bohm et al. 2013), and it has developed into a significant exporter of wild-collected adult turtles. Most turtles harvested in the United States are exported to supply food and medicinal markets in Asia, where turtle consumption rates have soared and native populations of turtles have rapidly depleted (Klemens and Thorbjarnarson 1995; Gibbons et al. 2001; Reed and Gibbons 2003). China is the biggest consumer of turtles in the food trade and has long commercially harvested their native turtles as food and Traditional Chinese Medicine, driving most populations to depleted levels and even extinction in the wild (Behler 1997; Chen et al. 2009). Most turtle species in Vietnam and southern China are endangered and there are reports that turtles can no longer be found in the wild in Vietnam (Kiester and Juvik 1997). Consumers of Asian cuisine prize America’s softshell turtles in particular because they appear similar to endemic Asian softshell turtle species that have been depleted by the food trade (Christiansen 2008).

Large scale turtle harvest is organized as a pyramid scheme, including trappers, middlemen, and dealers (Mali et al. 2014). Turtle dealers usually have an interstate network of several hundred employees capable of exporting thousands of turtles a year (Mali et al. 2014). Large adults are the most valuable on the meat market and are a primary target of commercial turtle trappers (Close and Seigel 1997; Ceballos and Fitzgerald 2004). Yet the adult life stage is the most sensitive to harvest (Heppell 1998; Congdon et al. 1993; Congdon et al. 1994; Zimmer-Shaffer et al. 2014).

The available data on turtle exports from the United States indicate that export-driven exploitation has targeted the red-eared slider (Trachemys scripta elegans), common snapping turtle (Chelydra serpentina), Florida softshell (Apalone ferox), and spiny softshell (A. spinifera), in particular. Some of the smaller hard-shelled turtle species are also targeted, including diamondback terrapins and map turtles. While export levels of freshwater turtles from the United States appear variable, the long-term trend shows an increase in trade for most species (Weissgold 2010). Louisiana has become a huge exporter of wild caught turtles. The number of wild caught turtles exported from Louisiana increased from 80,050 in 2008 to 6,386,030 in 2009 and has remained high (Mali et al. 2014).
The federal export data likely underestimates the number of wild harvested turtles in the U.S. for two main reasons (Colteaux and Johnson 2017). First, an unknown biomass of turtle meat is processed and canned domestically before export, none of which is required to be recorded by the U.S. Fish and Wildlife Service (USFWS). Second, the distinction between wild and farm stock in export records may be tenuous because no regulations prohibit wild-caught turtles from being exported as farm stock after being transferred to farm ponds (Colteaux and Johnson 2017). In addition, live turtles may be sold domestically, which is not required to be recorded by USFWS.

B. Wild Turtle Collection in Maryland

A high diversity of freshwater turtles can be found in Maryland, including species with very limited ranges like the northern map turtle and some with widespread ranges throughout the state like the eastern box turtle (MDNR 2010). Four families of freshwater turtles, comprising 13 species, are native to Maryland:

- Family Emydidae (bog turtle, spotted turtle, wood turtle, eastern box turtle, painted turtle, eastern river cooter, northern red-bellied turtle, northern map turtle, northern diamond-backed terrapin)
- Family Chelydridae (common snapping turtle)
- Family Trionychidae (eastern spiny softshell); and
- Family Kinosternidae (eastern musk and eastern mud turtles).

(MDNR 2010).

The bog turtle is listed as a state and federally threatened species, the northern map turtle is listed as a state endangered species, and the eastern spiny softshell is listed as a species “In Need of Conservation” in Maryland (Maryland Natural Heritage Program 2016). Eastern box turtle, northern diamond-backed terrapin, spotted turtle, and wood turtle are identified as “Species of Greatest Conservation Need,” those species identified in Maryland’s State Wildlife Action Plan as being at risk or declining. (MDNR 2016).

Prior to 2007, Maryland allowed unlimited commercial collection of diamondback terrapins, common snapping turtles, and red-eared sliders (Cain et al. 2017). In 2007, Maryland legislatively banned harvest of diamondback terrapins (Pfau and Rosenberg 2010). An increase in international demand for turtles starting in the late 1990s led the Maryland DNR to also seek management authority for the snapping turtle and the state passed enabling legislation in 2007 (MDNR 2018b). That same year MDNR convened a working group to come up with recommendations on ways to potentially better regulate the commercial fishery for snapping turtles (Cain et al. 2017). The working group was made up of turtle harvesters, academic...
scientists, seafood dealers, an aquaculturist, NGOs and agency representatives (Id.). Recommendations from the working group resulted in emergency interim regulations in 2008, and further modified regulations which became permanent in 2009 (MDNR 2018b).

Pursuant to these 2009 regulations, Maryland continues to allow unlimited commercial harvest of the common snapping turtle (Chelydra serpentina serpentina), though restricted to tidal waters. Code of Maryland Regs. 08.02.06.01(G)(1)(b) (describing general requirements and restrictions of the commercial fishery for snapping turtles: “a person may not buy, sell, or offer to buy or sell any snapping turtle harvested from the nontidal water of the State.”). Snapping turtles may be collected year-round in Maryland, except in the tributary waters of Charles County where “a person may not catch or attempt to catch snapping turtles ... from April 15 to May 31, inclusive.” MD Nat Res Code § 4-738(a) (2013); Code of Maryland Regs. 08.02.06.01(E).

Maryland’s current regulations restrict commercial collection and possession of snapping turtles to turtles with a minimum curved carapace length (“CCL”) of 11 inches (27.9 cm). Code of Maryland Regs. 08.02.06.01(G)(1)(a). Snapping turtles may not be taken “by the use of a hook and line, trot line, bow and arrow, spear, gig or gig iron, or any other device capable of piercing any part of a turtle.” Code of Maryland Regs. 08.02.06.01(C)(1). Traps used to catch snapping turtles must contain floats, made of solid foam or hard plastic, that will bring a portion of the trap to the surface of the water and provide breathing space for trapped turtles. Code of Maryland Regs. 08.02.06.01(G)(5).

The turtle collectors must also hold both a license to fish for commercial purposes and a snapping turtle harvest permit ($50). Code of Maryland Regs. 08.02.06.01(G)(1)(c); MD Nat Res Code § 4-701(d)(2)(ii)(2)(E) (2013). Snapping turtle permit-holders must record and submit their catch on the Department’s snapping turtle harvest report and on the daily commercial fisheries catch log which must be submitted to the Department monthly. Code of Maryland Regs. 08.02.06.01(G)(3); Code of Maryland Regs. 08.02.13.06(C)(1).

Over nine years (2008-2016) possessors of snapping turtle harvest permits reported collecting 70,301 common snapping turtles (1,019,418 pounds) from the wild in Maryland (Colteaux and Johnson 2017; MDNR 2018a). These reports may underestimate the actual number of turtles collected in the wild because of imperfect compliance with reporting requirements (MDNR 2012).

Restricting the areas where turtles can be trapped and the size of turtles that can be collected, while important steps in the right direction, are unlikely to have alleviated the risk to Maryland’s snapping turtles. Research from other states that allow commercial collection of freshwater turtles indicate that the spatial restrictions and size restrictions relied upon in Maryland’s current regulations are not likely to be sustainable (Brown et al. 2011; Colteaux and Johnson 2018)

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5 The interim regulations included a minimum legal size limit of 9.5 inches (24.1 cm) curved carapace length (CCL), but this minimum size was increased to 11 inches (27.9 cm) CCL in the regulations made permanent in 2009 in order to protect a larger percentage of reproductive females (Cain et al. 2017).
6 Compliance with reporting requirements was approximately 84 percent in 2008, 90 percent in 2009, 92 percent in 2010, and 96 percent in 2011 (MDNR 2012).
In addition to commercial harvest, Maryland also allows collection and possession without a license for common snapping turtles from tidal waters for noncommercial purposes. Code of Maryland Regs. 08.02.06.01(H)(3). If licensed, a person may take or possess a snapping turtle from nontidal waters for noncommercial purposes. Code of Maryland Regs. 08.02.06.01(H)(3). Maryland regulations do not allow for the taking or possession of a snapping turtle from the wild with a carapace length of less than four inches and limit possession to one turtle taken from the wild for noncommercial purposes. Code of Maryland Regs. 08.02.06.01(H)(1), (H)(2).

C. Natural History, Threats, and Status of Common Snapping Turtles

The common snapping turtle is a large, mostly aquatic turtle that weighs as much as 50 pounds (Ernst and Lovich 2009, p. 113-14). The common snapping turtle occurs in the United States, Canada, throughout Mexico, and as far south as Ecuador (NatureServe 2015). Common snapping turtles can be found throughout the state of Maryland (MDNR 2010).

Snapping turtles occupy all types of freshwater habitats (streams, lakes, reservoirs, ponds, marshes, swamps), especially those with soft mud bottoms and abundant aquatic vegetation or submerged brush and logs (Ernst and Lovich 2009, p. 115). The species exhibits good tolerance of altered habitats (NatureServe 2015). Common snapping turtles have a diverse diet and feed on insects, crayfish, fish, snails, earthworms, amphibians, snakes, small mammals, and birds. Up to a third of their diet, however, is made up of aquatic vegetation.

The species is characterized by delayed female maturation, relatively low fecundity, low recruitment, and long generation times. Snapping turtles commonly experience low reproductive success due to extensive predation on their eggs, but females produce large clutches and may live and reproduce for several decades, so they usually produce offspring that join the breeding population (NatureServe 2015).

Although common snapping turtles are not significantly threatened overall, urbanization and excessive harvest has local impacts (NatureServe 2015; van Dijk 2016). Females are especially susceptible during nesting season when crossing roads exposes them to injury and death from automobile strikes and makes them easy prey for humans who take them for food (Ernst and Lovich 2009, p. 113). Other threats include water pollution, drainage of water bodies, water impoundment and channelization, and development leading to increased raccoon populations (Ernst and Lovich 2009, p. 137). In Algonquin Park, for example, the probability of a snapping turtle embryo surviving to sexual maturity is less than 0.1% (COSEWIC 2008).

The common snapping turtle is widely exploited for local subsistence collection, as well as commercial trade for local, national, and international consumption (van Dijk 2016). The flesh of the snapping turtle is eaten throughout its range, and a soup can be made from it (Ernst and Lovich 2009, p. 137). Collection for human consumption has decimated some populations (Harding and Holman 1990; Tucker and Lamer 2004).

In the United States snapping turtles are sold at Asian seafood markets and Asian restaurants. Juvenile snapping turtles ship from online dealers for approximately $30 to $130 each (https://www.backwaterreptiles.com/turtles/snapping-turtle-for-sale.html);
Collection of snapping turtles from the wild and captive production in turtle farms for export to East Asia increased consistently and substantially in recent years, from about 10,000 common snappers declared as exported from the United States in 1999 to over 1 million in more recent years (van Dijk 2016; Weissgold 2010; USFWS 2016). Common snapping turtles are second only to red-eared sliders in terms of number of live individuals exported each year (Adkins Giese 2011). A recent study calculated that U.S. harvest of common snapping turtles has increased 209 percent since 1998 (Colteaux and Johnson 2017).

As for wild-caught live common snapping turtles, nearly 200,000 were exported from 2006–2010. Export data shows that exports of wild caught common snapping turtles increased dramatically with nearly 600,000 caught and exported in the last five years. Several huge individual shipments to China have occurred in the last decade, including 20,000 in 2011; 24,250 in 2011; 35,000 in 2012; two shipments in excess of 10,000 in 2013; and shipments of 20,000, 14,950 and 11,000 in 2015. More than 200,000 live, wild-caught common snapping turtles were exported annually in each of 2012 and 2014.

According to a recent study, for the 16 years between 1998 and 2013, an estimated 348,529 snapping turtles were reported as commercially harvested among 11 states that provided harvest data (Colteaux and Johnson 2017). The total annual harvest across reporting states was positively correlated with the number of wild caught live individuals exported (Colteaux and Johnson 2017).

Although snapping turtle populations have been known to be vigorous throughout much of the species’ range, long-term persistent take makes the species vulnerable to decline (USFWS 2016). Population recovery potential is low, due to a lack of an effective density-dependent response in reproduction and recruitment (Brooks et al. 1991; Galbraith et al. 1997). For example, in Michigan snapping turtles were intensively trapped for 2–3 years in the 1980s, which greatly reduced populations. Collection was then prohibited, and by 2009, populations were approaching pre-impact levels, suggesting a 25-30 year recovery period after depletion (van Dijk 2016).  

Some populations cannot withstand even minimal exploitation without undergoing a decline in numbers (Brooks et al. 1991; Brooks et al. 1988). Life-history models indicate that only slight increases (0.1) in annual adult mortality rate (such as from road mortality or harvesting) will cause a population to be halved in under 20 years (COSEWIC 2008).

While local declines have been documented, the species has not reached a 30 percent decline over 50 years (van Dijk 2016). As such, common snapping turtles are included on the IUCN Red List as a species of “least concern” (van Dijk 2016).

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7 A study looking at the status of alligator snapping turtles (Macrochelys temminckii) in Flint River, Georgia, since the close of commercial harvest in 1992, revealed little evidence of recovery after 22 years of protection from harvest (King et al. 2016). The researchers hypothesized that the species’ failure to increase in abundance in the intervening years may be hampered by the alligator snapping turtle’s life history, which includes delayed maturity and low reproductive output (Id.).
Effective November 21, 2016, the U.S. Fish and Wildlife Service regulates and monitors the international trade of the common snapping turtle under a new agency rule. The rule, which responds in part to a 2011 request from the Center for Biological Diversity documenting the harms of the turtle trade, adds the turtles to Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This designation is designed to curb overexploitation of these freshwater turtles for Asian food and medicinal markets.

Wild capture of common snapping turtles is prohibited in some states (including Michigan, West Virginia and New York) or strictly regulated (including Alabama, Connecticut and Iowa) (Colteaux and Johnson 2017). But some states still allow unlimited commercial take (including Delaware, Louisiana, Ohio, Tennessee and Virginia) (Nanjappa and Conrad 2011; van Dijk 2016). As of the 2015 commercial harvest season, 19 of the 37 states that make up the native range of the snapping turtle in the U.S. were open to commercial harvest (Colteaux and Johnson 2017). In March 2018 the Missouri Department of Conservation banned commercial collection of the state’s wild turtles, including common snapping turtles (Missouri Department of Conservation 2018). And in October 2018 the Texas Parks and Wildlife Department finalized a rule to end commercial collection of common snapping turtles, red-eared sliders, and smooth and spiny softshell turtles, finding that “the overwhelming consensus of available scientific opinion is that commercial collection of turtles from the wild is ultimately unsustainable.” 43 Tex. Reg. 7178, 7182 (October 23, 2018); 31 TAC §65.331(e).

III. JUSTIFICATION FOR THE REQUESTED RULEMAKING

A. Wild Turtle Populations Cannot Withstand Unlimited Commercial Collection

Natural populations of turtles are characterized by a suite of life-history characteristics that may predispose these populations to rapid declines when subject to wild collection (Congdon et al. 1993, 1994; Galbraith et al. 1997; Heppell 1998). Among these characters are delayed maturity, low fecundity, high annual survivorship of adults, and high natural levels of nest mortality (Reed and Gibbons 2003).

Removing even a few adult turtles from a population can have effects lasting for decades because each adult turtle removed eliminates the reproductive potential over a breeding life that may exceed 50 years (Brooks et al. 1991). For example, a modest harvest pressure (10% per year for 15 years) of common snapping turtles may result in a 50% reduction in population size (Congdon et al. 1994). Stable turtle populations are dependent on sufficient long-lived breeding adults to offset the effects of high egg and nestling mortality and delayed sexual maturity (Congdon et al. 1993; Wilbur and Morin 1988).

Accordingly, scientists have repeatedly documented that freshwater turtles cannot sustain any significant level of harvest from the wild without leading to population declines (Ernst et al. 1989; Congdon et al. 1993, 1994; Galbraith et al. 1997; Heppell 1998; Gibbons et al. 2001; Reed and Gibbons 2003; Burke et al. 2000; Gamble and Simons 2004; Brown et al. 2011; Zimmer-Shaffer et al. 2014). Congdon et al. (1994) concluded that carefully managed sport harvests of some populations may be sustainable, but “commercial harvests will certainly cause substantial population declines.” Reed et al. (2002) found that the removal of as few as two female adult alligator snapping turtles could halve a population of 200 turtles within 50 years. Congdon et al.
(1994) found that the removal of as few as 10 percent of the adults above 15 years of age could halve a snapping turtle population in 15 years. Garber and Burger (1995) documented the extirpation of a wood turtle (Glyptemys insculpta) population due to the occasional removal of adults by recreational users. After populations are depleted by overharvest, they can take decades to recover (Brown et al. 2011).

Life history traits not only constrain turtles in their response to harvest but also mask early detection by observers. In contrast to “traditional” managed wildlife and fisheries species, where the effects of management measures become measurable within years, the time scale of turtle life history results in exploitation effects becoming apparent and continuing to have effects for decades (van Dijk 2010).

While no research has been done in Maryland to assess the effectiveness of its new turtle regulations put permanently into place in 2009, studies completed in other states are instructive.

Until recently, Maryland’s neighboring state of Virginia also limited commercial collection of common snapping turtles to those with a minimum curved carapace length (CCL) of 11 inches (27.9 cm) (Colteaux 2017). Virginia increased the minimum size to 11 inches in 2012 and that same year initiated a four-year study to assess the viability of the state’s snapping turtle populations under varying levels of commercial harvest pressure, and to identify the size classes most critical to population persistence (Colteaux and Johnson 2018; Colteaux 2017). The results from this study suggest that these current size limits, being utilized in both Virginia and Maryland, are not sufficient to avoid harvest-induced collapse of snapping turtle populations. The study results suggest annual population declines and changes in population structure at sites with both moderate and high levels of turtle collection, as compared to a site with no collection that had an estimated four percent population growth rate and an even distribution of turtles across size classes. Sensitivity analyses conducted in this study indicate that the size classes that are targeted for removal under current regulations are those most critical to population persistence, and thus are those in most need of protection. The authors suggest that commercial harvest should be restricted to turtles with a CCL exceeding 14 inches (35.6 cm), at a minimum, to avoid the potential of harvest induced collapse. However, making this adjustment alone would likely not be sufficient to allow for the recovery of snapping turtle populations in Maryland that have likely suffered from declines under Maryland’s current and historic regulations.

In their report to the Virginia Department of Game and Inland Fisheries (“VGDiff”), Colteaux and Johnson (2018) also recommended a moratorium on commercial snapping turtle harvest for at least one generational cycle (7 years) for rivers with demonstrated prolonged commercial harvest, to allow time for recovery. In response the VGDiff closed five rivers, streams, and tributaries to commercial collection until 2025, and permanently closed a portion of the Chickahominy River and its tributaries so it can continue to be used as a control site for future research (VGDiff 2018). In addition, Virginia adopted several additional restrictions to commercial turtle trapping that became effective on March 1, 2019. 35:13 VA.R 1675 February 18, 2019.8

Texas restricted commercial collection of freshwater turtles to private lands and waters in 2007, a spatial management model similar to Maryland’s restriction of snapping turtle collection to tidal waters. At the same time, Texas contracted with researchers to study the state’s freshwater turtle populations and the effectiveness of the regulations. This research showed population declines in areas with commercial harvest and showed that the spatial harvest management model in Texas was not likely to be sustainable (Brown et al. 2011; Brown et al. 2012).

In recognizing that its current regulations were not sustainable, the Texas Parks and Wildlife Department adopted a rule in 2018 to prohibit commercial collection of common snapping turtles, red-eared sliders, and smooth and spiny softshell turtles. 43 Tex. Reg. 7178 (October 23, 2018); 31 TAC §65.331(e). The Department concluded that the “overwhelming preponderance of empirical data and scientific research indicate that the commercial exploitation of turtles places turtles at risk of extirpation wherever such exploitation occurs.” 43 Tex. Reg. at 7181.

Maryland’s authorization of commercial collection of freshwater turtles poses a risk to other species as well. Maryland’s regulations allow permitted individuals to use nets and traps to commercially harvest common snapping turtles. These nets and traps incidentally and indiscriminately capture many species, which subsequently drown when they cannot escape. Hoopnets range in length but most are long collapsible cylinder-shaped wire mesh or webbed netting funnel traps. The narrowing throat is open on one end to allow turtles and other aquatic animals to enter and not turn around to escape. The trap is baited with fish, stretched and weighted to capture hungry wildlife. These devices are capable of capturing all aquatic animals in the trap location including other species of freshwater turtles, fish, aquatic mammals (such as beaver, muskrat, otter, and mink), snakes and state and federal threatened and endangered species. Scientists have documented this type of incidental mortality from commercial fishing nets in the Mississippi River (Fratto et. al. 2007; Barko et al. 2004; Braun and Phelps 2016). Hoopnets and other turtle collecting devices have also been known to capture aquatic migratory birds that are protected under the Migratory Bird Treaty Act, 16 U.S.C. § 703.

Though Maryland regulations require that turtle traps “have a solid foam or hard plastic float inserted inside the trap that will bring a portion of the trap to the surface of the water and provide breathing space for trapped turtles,” Code of Maryland Regs. 08.02.06.01(G)(5), it is practically infeasible to monitor and ensure compliance. Further, even when partially submerged to allow captured animals to breathe, the likelihood of these traps drowning incidentally captured wildlife is significant due to unpredictable stream hydrology (rising waters from rain events), instability of trap design, and weight and movement of captured animals (Larocque et al. 2012).

In Maryland the bog turtle is listed as a federal and state threatened species and the northern map turtle is listed as state endangered species and the eastern spiny softshell is listed as a state species “In Need of Conservation” (Maryland Natural Heritage Program 2016). These protected aquatic turtles, and other turtle species that are prohibited from take, could be incidentally killed or captured by commercial turtle collectors. Restrictions on commercialization of turtles in Maryland would likely lead to less incidental take of nontarget species and make it harder for poachers to pass off rare, protected species as more common ones.
The commercial turtle trade not only depletes wild turtle populations, but also carries the risk of introducing diseases, upsetting ecological balances, and causing genetic pollution of resident native turtle populations (van Dijk 2010).

**B. Turtle Meat Poses a Human Health Risk**

A string of published scientific evidence demonstrates that consumption of turtle meat, shell, organs, and body parts can be harmful to humans. Meyers-Schöne and Walton (1994) examined dozens of scientific studies of pesticide and metal concentrations in freshwater turtles from the 1960s through the 1980s. Over a dozen studies found significant concentrations of numerous pesticides in freshwater turtles in states throughout the south, including aldrin, chlordane, DDT, dieldrin, endrin, mirex, nonachlor, and toxaphene (Meyers-Schöne and Walton 1994). Studies found bioconcentration of mercury and other metals such as aluminum, barium, cadmium, chromium, cobalt, copper, iron, lead, molybdenum, nickel, strontium, and zinc in turtles in Florida, Georgia and other southern states (Meyers-Schöne and Walton 1994). In addition, a recent study of diamondback terrapins in New Jersey found that 27 - 46 percent of terrapin muscle samples had mercury levels exceeding the U.S. Environmental Protection Agency’s threshold of 0.3 ppm for seafood consumption for the general public, and 50 – 73 percent of samples surpassed the New Jersey sensitive threshold (Sherwood et al. 2018).

Turtles, as apex trophic animals, will bioaccumulate toxins from contaminated prey (Kennish and Ruppel 1998). Because of their longevity, their exposure time to environments with aquatic contaminants is longer, which causes turtles to retain greater amounts of bioaccumulation compared to shorter lived lower trophic animals like finfish (Kennish and Ruppel 1998; Rowe 2008). Turtles that burrow and submerge themselves in contaminated sediment, such as snapping turtles and softshell turtles, are likely to have greater levels of aquatic contaminants because their pathway of exposure is greater.

The Maryland Department of Environment has 82 consumption advisories for recreationally caught fish and crab throughout the state for PCBs, chlorinated pesticides (i.e. DDT, dieldren) and mercury (MD Dept. of Environment 2018). It is unclear whether commercially collected turtles came from these areas under consumption advisories.

In light of the contamination of Maryland water bodies and waterways, and scientific evidence that turtles bioaccumulate high levels of aquatic contaminants, eating wild caught turtles in Maryland poses a human health risk. This provides yet another reason MDNR should prohibit commercial collection and sale of all wild caught turtles in Maryland.

**C. Most States Have Ended This Harmful Practice**

Numerous state wildlife agencies have ended commercial harvest of native freshwater turtles in the last decade. For example, North Carolina, Alabama and Mississippi have long banned this harmful practice.

Starting in 2007, the Center for Biological Diversity (Center) identified 12 southern and Midwestern states that still allowed commercial collection of turtles (Arkansas, Florida, Georgia,
Iowa, Kentucky, Louisiana, Missouri, Ohio, Oklahoma, South Carolina, Tennessee, and Texas). The Center submitted administrative rulemaking petitions to these states requesting each to prohibit commercial harvest of freshwater turtles. The petitions and background information on the commercial harvest of freshwater turtles can be found on the Center’s website at: http://www.biologicaldiversity.org/campaigns/southern_and_midwestern_freshwater_turtles/index.html.

In response to the Center’s advocacy and administrative rulemaking requests, in 2009 Florida closed commercial turtle harvest in both public and private waters. Fla. Admin. Code Ann. r. 68A-25.002(6)(c). Oklahoma banned commercial harvest of turtles from public waters, but large year-round commercial harvest of unlimited numbers of eight species of turtles still exists in private waters, including softshell turtles less than 16 inches in length and common snapping turtles. 29 Okl. St. § 6-204; OAC § 800:15-9-3. In South Carolina, it is now unlawful to remove more than 10 turtles from the wild at one time and more than 20 turtles in one year, for nine native species. S.C. Code Ann. Regs. 50-15-70. In 2012, Georgia set annual catch limits of 100 turtles per year for the Florida softshell turtle, spiny softshell turtle and river cooter; 300 per year for the common snapping turtle, painted turtle, eastern mud turtle and loggerhead musk turtle; and 500 per year for the pond slider. Ga. Comp. R. & Regs. § 391-4-16-.05(1). Also in 2012, Alabama prohibited commercial collection of all turtles listed as nongame species, with an allowance for very limited personal collection. Ala. Admin. Code r. 220-2-.142 (2)(A); Ala. Admin. Code r. 220-2-.92.

In 2017, new regulations went into effect in Iowa setting closed seasons and daily catch and possession limits for commercial turtle trappers (Iowa Dept. of Natural Resources). And in 2018 the Missouri Department of Conservation and the Texas Parks and Wildlife Department banned commercial collection of their states’ wild freshwater turtles (Missouri Dept. of Conservation 2018; 43 Tex. Reg. 178 (October 23, 2018)).

As individual states close or restrict turtle trapping within their borders, harvest pressure increases on the remaining states without restrictions (Mali et al. 2014). In addition, turtle poachers often illegally trap in states with restrictions and claim that the turtles came from an adjacent state where trapping remains legal (Mali et al. 2014). For example, in 2016 a Louisiana man was accused of using commonly harvested common snapping turtles as cover for the sale of at least 160 protected species of turtle (http://www.nola.com/crime/index.ssf/2016/01/minden_man_accused_of_smugglin.html). In that way, overexploitation can more easily occur in regions with inconsistent state regulation of turtle trapping.

Of the four states that share a border with Maryland, West Virginia does not allow commercial collection of freshwater turtles (Colteaux and Johnson 2017). Delaware and Virginia allow unlimited commercial collection of common snapping turtles, although, as discussed above, Virginia recently adopted a number of additional restrictions for commercial trappers. 18 Delaware Admin. Code 3900-2.9; 4 Virginia Admin. Code §15-360-30. Pennsylvania limits commercial collection of common snapping turtles with a daily bag limit of 15 and possession limit of 30. 58 Pa Code §79.3(h).
The Mid-Atlantic region of the United States is a hotspot for commercial turtle collectors, and reform is needed. If Maryland would end commercial collection of common snapping turtles within its borders, adjacent states are likely to follow its example and the region would be better equipped to protect its turtle populations by making clear to turtle traders that trade is strictly regulated and enforced in the region.

IV. PROPOSED RULE AMENDMENT

The Center suggests the following amendment to MD Code of Regulations 08.02.06.01. Under the proposed rule amendment, the bold and strikethrough language below would be deleted with modifications to the subsequent sections shown in redline italics.

Maryland Code of Regulations 08.02.06.01 Snapping Turtles

A. In this regulation, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Carapace" means the top shell of a turtle.

(2) "The wild" means any land or water in the State, either natural or altered, upon which a snapping turtle can exist in a condition which is not constrained or controlled by humans.

C. Methods of Taking Snapping Turtles.

(1) A person may not catch a snapping turtle from the waters of the State by the use of a hook and line, trot line, bow and arrow, spear, gig or gig iron, or any other device capable of piercing any part of a turtle.

(2) Nontidal Waters. In addition to the gear prohibited in §C(1) of this regulation, a person may not catch a snapping turtle from nontidal waters of the State by the use of a net, seine, fish pot, trap, or other fishing rig.

D. Measuring a Snapping Turtle. The length of a snapping turtle shall be measured:

(1) Along the curvature of the carapace with a flexible tape measure that conforms to the snapping turtle's shell; and

(2) From the nuchal scute, the scute directly behind the turtle's head, to the base of the notch where the two most posterior scutes meet, as described on the harvester's snapping turtle harvest permit card.

E. Season. The only place and time that a person may not catch or attempt to catch snapping turtles is in the tributary waters of Charles County from April 15 to May 31, inclusive.
F. Eggs and Nests. A person may not possess, destroy, or disturb snapping turtle eggs or disturb the nest of a snapping turtle.

G. Commercial Fishery.

(1) General Requirements and Restrictions.

(a) A person may not harvest or possess a snapping turtle for commercial purposes that has a carapace length that is less than 11 inches, measured in accordance with §D of this regulation.

(b) A person may not buy, sell, or offer to buy or sell any snapping turtle harvested from the nontidal waters of the State.

(c) A person catching snapping turtles for commercial purposes shall:

   (i) Be licensed to fish for commercial purposes in accordance with Natural Resources Article, §4-701, Annotated Code of Maryland; and

   (ii) Have the Department-issued snapping turtle harvest permit in possession while harvesting or transporting snapping turtles.

(2) Snapping Turtle Harvest Permit.

(a) Snapping turtle harvest permits shall be issued to all licensees who have:

   (i) Paid the fee for a snapping turtle permit as required by Natural Resources Article, §4-701, Annotated Code of Maryland; and

   (ii) Met all reporting requirements as required by Natural Resources Article, §4-206, Annotated Code of Maryland, and this regulation.

(b) Snapping turtle harvest permits may not be transferred.

(3) Reporting. A person permitted by the Department to harvest snapping turtles shall:

(a) Record their catch on the snapping turtle harvest report and on the daily commercial-fisheries catch log;

(b) Submit the snapping turtle harvest report as required by the Department and the daily commercial-fisheries catch log in accordance with COMAR 08.02.13.06; and

(c) Make available daily information, harvest report cards, and catch logs for immediate inspection on request of a Department representative.

(4) Penalties.

(a) In addition to any other penalty established in COMAR 08.02.13, failure to comply with this regulation may result in the denial of a subsequent permit.
(b) Prior to suspending a permit under this regulation or denying an application for a permit, the Department shall give the licensee notice of its intended action and an opportunity to appear at a hearing conducted in accordance with the contested case procedures set forth in State Government Article, Title 10, Subtitle 2, Annotated Code of Maryland, and COMAR 08.01.04.

(5) Float Requirements for Traps. A trap used to catch snapping turtles shall have a solid foam or hard plastic float inserted inside the trap that will bring a portion of the trap to the surface of the water and provide breathing space for trapped turtles.

G-H. Noncommercial Taking and Possession; Pets.

(1) A person may not take or possess a snapping turtle from the wild that has a carapace length that is less than 4 inches.

(2) A person may not possess more than one snapping turtle taken from the wild for noncommercial purposes.

(3) A person must be licensed in accordance with Natural Resources Article, §4-604, Annotated Code of Maryland, to take or possess a snapping turtle from nontidal waters for noncommercial purposes.

(4) A person need not be licensed in accordance with Natural Resources Article, §4-745, Annotated Code of Maryland, to take or possess a snapping turtle from tidal waters for noncommercial purposes.

H-I. Release of Captive Snapping Turtles. A person may only release a snapping turtle taken from the wild back to the wild if the person has obtained prior written authorization from the Department.

J-J. Exceptions. The provisions of §§C, E, and F of this regulation do not apply to a person who:

(1) Is authorized by a scientific collection permit in accordance with Natural Resources Article, §4-212, Annotated Code of Maryland;

(2) Is authorized by a landowner wildlife damage control permit in accordance with Natural Resources Article, §10-206, Annotated Code of Maryland; or

(3) Is authorized by a commercial wildlife damage control permit in accordance with Natural Resources Article, §10-908, Annotated Code of Maryland.

J K. Public Notice.
(1) The Secretary may modify size limits or open, close, or modify a season by publishing notice in a daily newspaper of general circulation at least 48 hours in advance, stating the effective hour and date.

(2) The Secretary shall make a reasonable effort to disseminate public notice through various other media so that an affected person has reasonable opportunity to be informed.

It is Maryland’s policy “to conserve species of wildlife for human enjoyment, for scientific purposes, and to insure their perpetuation as viable components of their ecosystems” MD Nat Res Code § 10-2A-02(a)(1). Under the Maryland Code of Natural Resources, the Maryland DNR has the duty to adopt limitations to conserve nongame wildlife. Id. § 10-2A-03(b). To this end, the DNR can establish any limits on take necessary to manage snapping turtles, MD Nat Res Code § 4-218. Maryland also has a duty to protect endangered species under the federal Endangered Species Act, 16 U.S.C. § 1531, and a duty to enact effective state wildlife laws that discourage interstate commerce of illegally collected wildlife under the Lacey Act, 16 U.S.C. § 701. Consistent with these legal duties and authorities, the proposed rule amendment is intended to ensure the ability of Maryland’s turtle populations to perpetuate themselves by protecting them from the harmful impacts of unlimited commercial collection.

IV. CONCLUSION

The Center has summarized the harms caused by the commercial collection of wild turtles in Maryland. Specifically, the Center has demonstrated that wild turtles cannot withstand unlimited commercial collection without facing population declines. In addition, the wild collection of wild turtles to be sold for meat poses a human health risk because of contaminants. As a result of the significant harm caused by unlimited commercial collection of turtles, most states have ended or are ending the practice, including West Virginia, which borders Maryland. The Center therefore requests that the Maryland Department of Natural Resources adopt the proposed rule amendment and end commercial collection of snapping turtles in all waters of the state.
V. LITERATURE CITED


Maryland Natural Heritage Program. 2016. List of Rare, Threatened, and Endangered Animals of Maryland. Maryland Department of Natural Resources, 580 Taylor Avenue, Annapolis, MD 21401.


