ATLANTIC COWNOSE RAYS - Fishery Management Plan and Regulations

The Atlantic Cownose Ray:

- Is a species of eagle ray;
- Is native to the Chesapeake Bay and Atlantic coastal waters; and
- Traverses shallow coastal areas along their seasonal migratory routes and overwinters offshore of Florida.

Seasonal Patterns

- Schools of Atlantic cownose rays leave overwintering grounds in Florida, and migrate northward along the coast, with portions of the adult population segmenting off into different large estuaries.
- Atlantic cownose rays segregate by sex and size, utilizing different habitats at different stages of life.
- A segment of the adult population enters the bay in May.
- They enter the river systems in June and remain for much of the summer.
- Parturition (giving birth to young) occurs from mid-June to early July followed closely by mating.
- Adult males emigrate shortly after mating (July-August).
- Adult females emigrate as water temperatures cool in the fall, generally September.
- Age-0 rays emigrate in October.

Reproduction

- Gestation is 11 to 12 months.
- Annual fecundity per female is typically one pup.
- Late age at maturity (7-8 years).
- Given a reproductive life span of 14 years, based upon first parturition at age-8, and a maximum life span of 21 years, a female Atlantic cownose ray may produce 14 offspring in her lifetime. Because the sex ratio of embryos is 1:1, the estimated lifetime production of female offspring is seven. A low fecundity value indicates that the cownose ray population is not capable of rapid population increases.

Food and Submerged Aquatic Vegetation (SAV) Concerns

- Cownose rays are benthic feeders and consume a wide range of prey, including thin-shelled bivalves, crustaceans, polychaete worms, and fish.
- Studies have not shown a positive correlation between the temporal decrease in bivalves and an increase in cownose rays. Bivalve stocks along the coast have been impacted by many things, not only by predation.
- Rays may uproot submerged aquatic vegetation (SAV) while foraging.
- One study discovered that after Atlantic cownose rays had foraged within and fragmented seagrass beds in midsummer, juvenile crab survival increased in smaller beds, perhaps as a result of reducing the value of the habitat for adult blue crabs, which are a major predator of juvenile blue crabs. Adult blue crabs, meanwhile, preferred larger, continuous beds of SAV.

Recreational Fishing

- Cownose rays are targeted by sport fishermen using archery gear, resulting in mortality. They are also incidentally caught by hook-and-line anglers and while trolling.
- There has been a ban on tournaments/contests since 2017.
- The removal of gravid (pregnant) females could decrease the population by effectively removing two generations at once, the mature female and young of the year.
- The Marine Recreational Information Program (MRIP) does include cownose rays in their surveys, but the Percent Standard Error is too high to make the data useful.

Commercial Fishing

- There is not a directed commercial fishery in Maryland,
- A bycatch fishery occurred in Virginia from 2007 to 2014, but ended due to the failure to develop a viable market.
- Due to their large size and schooling behavior in shallow coastal waters, cownose rays are vulnerable to incidental capture in large numbers in pound nets and haul seines.
- Their large, flapping wings and barbed dorsal spine make them difficult to handle and discard.
- During the period 2016-2024 commercial harvesters reported harvesting approximately 275 pounds of rays. Of that total, approximately 70 pounds were reported as cownose rays, but it is possible that some of the unclassified rays were cownose rays.
- No estimate of discard mortality from commercial fisheries currently exists.

Stock Status

- The current status of the Atlantic cownose ray is unknown.
- The available data on the U.S. East Coast population of Atlantic cownose ray is insufficient to conduct a stock assessment.
- In data-deficient situations, extinction risk can be estimated from a small set of biological parameters to rapidly assess the vulnerability of a species or population. See Section 3.8 of the management plan for further explanation.
- A fishery for Atlantic cownose ray would benefit from science-based management that includes a coast wide stock assessment conducted by a regional or national organization.
- Stock assessments require both fishery independent and dependent data to simultaneously measure changes in relative abundance and sources of mortality.
- Conducting a stock assessment would require substantial funding and a collaborative effort among the Atlantic states.

What is being considered and why?

1) The Department would like to incorporate by reference the Fishery Management Plan for Atlantic Cownose Rays into the Code of Maryland Regulations. The plan was adopted by the Department on January 14, 2026. A Fishery Management Plan (FMP) provides a format for undertaking management measures throughout Maryland state waters. FMPs are amended as needed.

   Incorporation by reference (IBR) is a legal device by which one document is made a part of another simply by referring to it. The text of the referenced document, once incorporated by reference, becomes fully and legally a part of the document into which it is incorporated.

Incorporation by reference must take place within a regulation. A regulation proposing to incorporate a document by reference is no different than any other proposed regulation. All of the standard regulation-making procedures apply.

Background and Justification
In 2017, the Maryland General Assembly directed the Department to prepare a cownose ray fishery management plan and to place a temporary moratorium on cownose ray fishing contests (2017 Md. Laws, Chap. 399). The legislation required the Department to create a fishery management plan for cownose rays, subject to available funding, by Dec. 31, 2018, and to implement a temporary moratorium on a person sponsoring, conducting, or participating in a cownose ray fishing contest in state waters through July 1, 2019. A cownose ray fishing contest is defined as, "any competition, tournament, or derby with the objective of catching or killing cownose rays for prizes or entertainment." In 2019, the Maryland General Assembly extended the moratorium until a fishery management plan is completed, and gave the Department until December 2020 to complete it, subject to funding (2019 Md. Laws, Chap. 343). The Fishery Management Plan for Atlantic Cownose Rays (January 2026) was developed by the Department with the help of the Cownose Ray Workgroup, comprised of representatives of interested and impacted parties in the cownose ray fishery.

Natural Resources Article, §4-215, Annotated Code of Maryland requires the Department to adopt management plans and proposed conservation and management measures by regulation. Therefore, after a management plan or amendment to a management plan is adopted, it must be incorporated into regulation to be fully effective and provide authority for the Department to regulate a species. This is the final step in adopting the Fishery Management Plan for Atlantic Cownose Rays.

2) The Department is considering establishing regulations to implement the plan.

Background and Justification
- The life history and population dynamics of rays are different from other commercial species that are typically fished in Maryland. Teleosts, or bony fish (such as striped bass), generally exhibit wide fluctuations in recruitment (the number of fish surviving to enter the fishery). These fluctuations are often the result of environmental conditions that affect the survival and growth of early life stages, and can be independent of fishing mortality. Many bony fishes produce millions of eggs, and under optimum environmental conditions produce a dominant year-class that can increase the population and sustain exploitation through years when recruitment is low. Fecundity is one of the most important life history characteristics of reproductive potential, and the ability to rebound from fishing pressure.
- Cownose rays have a very low intrinsic rate of population increase. Their long life span, low fecundity, and late maturity make them vulnerable to recruitment overfishing, and slow to recover if overfished.
- Because cownose rays have not been a research or management priority, data on recreational and commercial catches as well as discard mortality are lacking, and no stock assessments have been conducted. Cownose ray catch limits could be set based on

knowledge of reproductive characteristics and ecological risk, but not on a traditional population assessment at this time.

- The Chesapeake Bay serves as an important nursery and mating ground for the U.S. East Coast population of Atlantic cownose rays.
- Tagging studies provide evidence of philopatry (returning to the same area year after year to give birth and mate), but more research would be needed to fully confirm and validate philopatry.
- Strategy 2.3 of the management plan states that regulations should be implemented to ensure survivability of the Atlantic cownose ray population while information is being gathered to determine harvest potential.
- In addition to strategies and actions described in the management plan, during scoping of the draft fishery management plan, the Department received comments that support regulations that minimize release mortality, protect pups, minimize harvest until there is enough data to open a fishery, and minimize "wanton waste".
- Given the lack of information on the population and low reproductive potential, controls on the harvest are necessary, but there are a variety of ways to consider a harvest so that overfishing is prevented and young are protected.

The Department is considering the following rules:

a) Maintain the ban on fishing tournaments.

Action 2.3.1 of the management plan states that the moratorium on recreational tournaments should be continued. Recreational tournaments have been banned in Maryland since 2017. The Department plans to continue the ban unless future monitoring provides enough information about the population and harvest methods to allow tournaments.

b) Establish a daily catch limit rather than a season.

The management plan recommends the implementation of recreational and commercial regulations to protect the population. Given low birth rates and the difficulty determining the sex and age of a cownose ray while fishing, the Department is considering a catch limit rather than a season. However, the Department is gathering feedback to determine if there is a preference. The management plan is clear that harvest needs to remain low until more is known about the population. Therefore, the catch limit could be 2, 3, 4, or 5 cownose rays per person per day, or another number determined during scoping.

Action 2.3.3 of the management plan suggests considering a harvest season based on life cycle history. Data shows that by July 15 each summer, most rays have birthed pups for the year. One method of controlling harvest would be to establish a season. If a season is preferred, the Department would like feedback on dates for the season. Potentially, the season could be opened after July 15.

The comment form asks for feedback for each possibility.

c) Establish a multiday possession limit.

If a catch limit is established, the Department would like to establish a possession limit that would be double the catch limit. This would accommodate overnight or extended fishing trips. For example, if the daily catch limit is 2 cownose rays per person per day, a person could have 4 cownose rays in their possession for longer fishing trips.

d) Require a person to land cownose rays when using a gaff or when fishing with projectile gear.

A person would not be able to puncture a cownose ray with a gaff or projectile gear and then release it back into the water. Requiring a person to land the cownose rays when using a gaff or when fishing with projectile gear is necessary to implement and enforce the catch and possession limits. A cownose ray that has been punctured will not likely survive if released, and so should be included in the catch and possession limit. Requiring retention will allow the Natural Resources Police to ensure that catch and possession limits are not exceeded.

e) Require a person fishing for Atlantic cownose rays to have in possession at least one device capable of quickly cutting either the leader or the hook for release.

When a person catches a cownose ray that they intend to release, the goal is to remove the hook, but if a hook cannot be quickly or safely removed then the preference is to quickly cut the line as close to the mouth as possible and release the ray. Rays are generally hard to handle because they have strong wings, thrash around, and have a venomous spine. Requiring a recreational angler who is specifically fishing for Atlantic cownose rays to have in possession at least one device capable of quickly cutting either the leader or the hook for release increases the possibility for survival for the cownose ray as well as increases safety for the angler during release of the ray.

Who will this affect?

Anyone who fishes for, catches, or harvests Atlantic cownose rays recreationally (including guided fishing trips) or commercially in Maryland waters.

Additional Information

- Fishery Management Plan for Atlantic Cownose Rays (January 2026)
- Tracking animal movements via collaborative acoustic telemetry networks: Multiscale habitat use, phenology, and management insights (2024)
- Code of Maryland Regulation - COMAR 08.02.25.05 - Current regulation for the commercial use of archery equipment
- Code of Maryland Regulation - COMAR 08.02.25.03 - Current regulation for the recreational use of projectile gear (archery equipment, gig, spear, and spear gun)

Has this change been discussed with advisory bodies or other interested or impacted individuals?

1) The draft management plan was developed by the Department with the help of the Cownose Ray Workgroup, which was comprised of representatives of interested and impacted parties in the cownose ray fishery.
2) The draft management plan was scoped with SFAC and TFAC at their meetings in October 2025. Comments were accepted from the advisory bodies and the general public from October 28 through November 30, 2025. The Department received 70 responses representing individuals and groups.
3) Comments from the commissions and the public were addressed. Many comments were supportive of the plan, several requested regulations that the Department can consider in the future, and a couple comments resulted in minor updates to the plan.
4) This idea was scoped with the Sport Fisheries Advisory Commission (SFAC) and the Tidal Fisheries Advisory Commission (TFAC) at their meetings in January 2026. Based on discussions at the meetings, additional information and justifications were added to the scoping summary.

Regulatory Process

Fishing rules in Maryland may be created by either the General Assembly or the Department. When the Department creates a fishing rule, it is called a regulation. When the General Assembly creates a rule, it is called a statute. The Department often has to create a regulation to implement a statute. The regulatory process begins with scoping and the Department follows normal procedures as concepts move forward.

During the scoping process, the Department gathers suggestions and ideas from stakeholders and others about how to solve a fishery problem or address a need. The goal of scoping is to identify issues, potential impacts, and reasonable alternatives associated with the issues so that management actions can be developed. After the public has had an opportunity to comment on possible management actions during the scoping process, the Department considers these comments and develops an appropriate management strategy.

When would this be effective?

The Department projects that this change could be effective in the fall of 2026. However, the exact date cannot be determined at this time.