

Selecting the Optimal Duck Seasons for New York - Western Zone

Goal: To select duck season dates through a decision-making process that maximizes duck hunter inclusion and is scientifically defensible, data driven, clear and transparent.

Annual Regulatory Process:

Duck hunting seasons in North America are set through a multi-step, multi-government agency process. Biologists from the United States Fish and Wildlife Service (USFWS) and [Flyway Councils](#) (each state has a representative on the Council) evaluate the population status and determine harvest recommendations across the United States. Unlike non-migratory species (e.g., deer, rabbits, or grouse), waterfowl (ducks, geese, and swans) need to be managed at the much larger flyway scale, that involves multiple agencies providing input to establish seasons

that provide sustainable hunting opportunity. Each year, the USFWS and the Flyway Councils work together collaboratively to develop a framework that includes the maximum number of days allowed during the open season and general rules for how and when to offer those days. For example, in 2018, New York was authorized 60 days of duck hunting within a span of 128 days, and those 60 days could be split into no more than two blocks. The USFWS then posts these frameworks in the [federal register](#) for public comment. Once the Federal regulation are finalized, individual states can select duck, goose, and other migratory bird season dates that fit within these guidelines.

Choosing the "best" duck season dates has long been a contentious topic amongst duck hunters. Depending on which species you're interested in pursuing (e.g., wood ducks, mallards, canvasbacks) or the types of habitat you hunt (e.g. shallow marshes, deep water, fields, etc.), the "best" dates for each zone can vary from person to person. DEC and Cornell University developed a new way to select the optimal duck season dates in each zone in an effort to include input from a greater number of duck hunters and specific data on duck abundance. Over the past two years, with the assistance of the [Waterfowl Hunter Task Force](#) (a group of avid duck hunters in each



What is Structured Decision Making?

Structured decision-making, or "SDM," is a transparent, objective process for making complex decisions, particularly when the people affected by that decision have deeply held, competing values. In the case of selecting duck seasons, SDM uses data on duck migration and abundance and duck hunter values to identify a duck season that best balances competing interests. DEC used SDM to evaluate a suite of season date alternatives that were developed by the Waterfowl Hunter Task Forces in each zone.

zone), we've identified duck hunting season dates that balance the competing values and interests of duck hunters in each zone to maximize satisfaction. We used new, never before available, information on the timing of duck abundance and migration and a formal survey of what duck hunters value most in their hunting experience. These two sets of information were combined and evaluated under a framework known as Structured Decision Making (SDM).

DEC intends to adopt the recommendation of the SDM evaluation of duck season dates for a period of 5 years (barring any changes to the federal framework).

The Steps of SDM

1. Define the problem

2. Determine Objectives

3. Identify Alternative Management Actions

4. Evaluate Likely Consequences (Outcomes) of the Management Actions

5. Evaluate Tradeoffs Among Objectives

6. Decide and Take Action

The following pages describe how DEC, Cornell University, and the Waterfowl Hunter Task Forces went through these steps in evaluating which season dates best meet the values of duck hunters in each hunting zone.

3. Management Alternatives (Season Dates)

DEC worked with the Waterfowl Hunter Task Forces to identify up to 9 unique season date alternatives that would satisfy the objectives both individually and in combination. We also evaluated the “status quo” season that was previously chosen by the Waterfowl Hunter Task Force. The alternative season dates evaluated for this specific zone are outlined on page 5.

1. Defining The Problem

To identify the optimal duck season dates within the federal framework that best align with duck hunter values and duck migration timing and abundance.

2. Duck Hunter Objectives

DEC biologists worked with the Waterfowl Hunter Task Forces from across the state to identify key objectives that maximize duck hunter satisfaction. Six fundamental objectives were identified:

- Maximize the opportunity to see and shoot wood ducks and teal species
- Maximize the opportunity to see and shoot mallards and black ducks
- Maximize the opportunity to see and shoot diving ducks (e.g., scaup, redhead, common goldeneye)
- Maximize the opportunity to see and shoot ANY duck (regardless of species)
- Maximize the opportunity to go duck hunting (including weekends and holidays)
- Minimize the overlap of waterfowl and deer hunting seasons

Some of these objectives had more than one part, or in other words, sub-objectives. For example, maximizing the opportunity to see and shoot mallards and black ducks requires that birds are there in high numbers and also that there are birds susceptible to harvest by hunters (i.e., newly arriving migrating birds). Unlike maximizing opportunity to see and shoot mallards and black ducks which migrate later in the fall, species like teal and wood ducks have nearly reached their peak migration early in the season. Therefore, there is no way to maximize the opportunity to shoot teal and wood ducks by capturing their migration. The only objective we can accomplish is to capture the periods of time when they are most abundant.

In addition to considering abundance and migration, the ANY duck objective included hunter desires to be afield when the number of duck species present is greatest (peak variety of ducks at any one point) or when many species are available in high abundance.

Beyond the objectives related to duck migration and abundance, many duck hunters have expressed interest in simply wanting duck seasons to be open when they are more likely to be available to go duck hunting (e.g., weekends, holidays, and when it doesn't conflict with other hunting activities).



4. Testing the Consequences (outcomes) of Alternatives

Consequences - the results we can expect to see when each alternative is carried out. The consequences also describe the extent to which each objective is satisfied.

To evaluate how well each alternative (i.e., season date configuration) would achieve each of the specified objectives (page 2), we used the following data:

1. We estimated migration timing and relative abundance using eBird data for 12 species of ducks that are important to hunters. All data were specific to each waterfowl zone.
2. We totaled the number of weekend days and holidays included in each alternative to evaluate each alternative's ability to maximize weekends and holidays.
3. We considered how much each alternative overlapped with the first week of the regular firearms deer season and the 3-day youth deer season to evaluate each alternative's ability to minimize overlap with deer seasons.

What is eBird and how is it used to estimate abundance and migration?

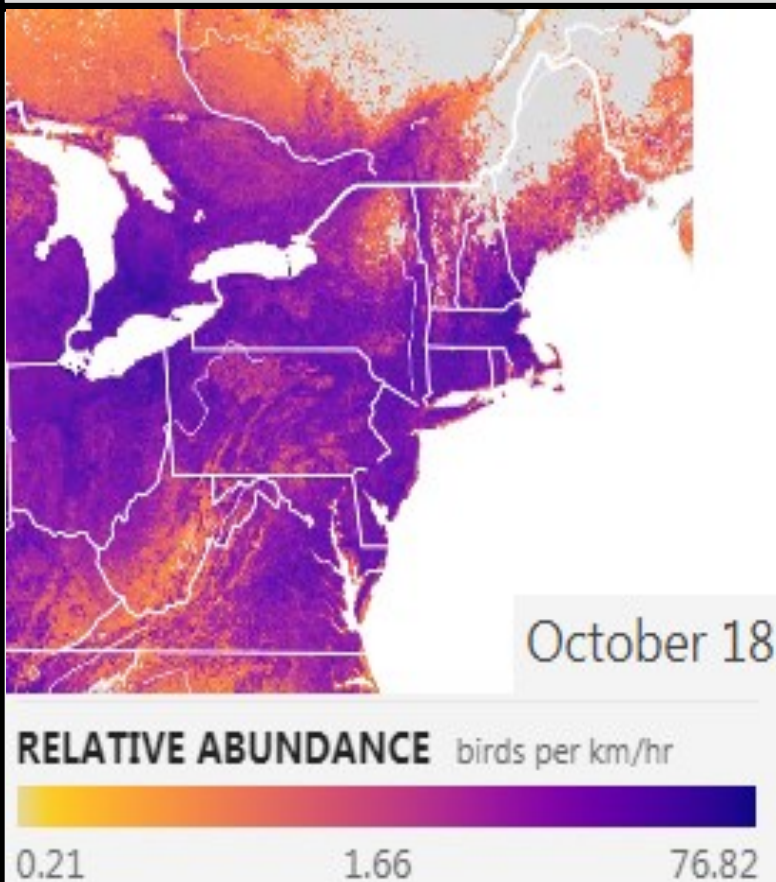
eBird is one of the largest wildlife related citizen science projects in the world. Birders and hunters use the website and app to log the birds they observe while outdoors; eBird users world-wide report an average of 7.5 million observations each month!

Information from these observations can be analyzed by statisticians to estimate relative abundance across the area. For the duck season SDM process, we worked with researchers at Cornell University and the Cornell Lab of Ornithology to estimate relative abundance of 12 species for each duck hunting zone. The new statistical techniques used with this type of data estimates relative abundance and adjusts for several factors that influence how many birds a person sees while looking for birds: time of day (e.g., birds are more active and more likely to be seen at different times of the day), habitat suitability, effort (i.e., how long someone is out birding), and the distance covered by the observer. **Relative abundance calculated from the eBird data is an estimate of how many birds would be counted on a one-hour walk, at 7:00 AM, covering one kilometer of distance.**

For the duck season SDM process, we averaged the relative abundance across each zone for each week of the federal framework (i.e., the Saturday closest to September 24th through January 31st each year). The change in abundance between weeks was used as an indicator of migration. As an example, the map (left) shows the relative abundance of wood ducks on October 18th across their range in northeastern North America.

For more information on eBird abundance data, visit the Cornell Lab of Ornithology website:

<https://ebird.org/science/status-and-trends/>



Map Courtesy of: Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. eBird Status and Trends. Version: November 2018. Cornell Lab of Ornithology, Ithaca, New York.

5. Evaluation of Tradeoffs

Trade-offs – you cannot achieve all of the objectives, to their fullest extent, at the same time. Trade-offs are about compromise. When trade-offs occur, you are giving up some or all of one objective in order to achieve another objective that is competing with it. The “optimal” alternative is the one that does the best job at satisfying the objectives.

In SDM, tradeoffs among objectives are made by weighting the objectives and consequences based on each objective’s relative importance to stakeholders. In this decision process, the stakeholders are the duck hunters in each specific zone. To develop the appropriate weights, DEC and Cornell University, with input from the Waterfowl Hunter Task Forces, developed the 2017 duck hunter survey.

All six of the objectives developed by the Task Forces were important to some portion of the duck hunting community in each zone, but some were more important than others (see figure below). The objectives were weighted based on the relative importance and a total “score” was calculated on a scale from 0%-100% for each alternative to reflect the degree to which the six objectives were satisfied.

What is most important to duck hunters in the Western Zone?

During the fall of 2017, DEC and Cornell University Center for Conservation Social Sciences sent out a survey to 6,000 randomly selected duck hunters out of 18,000 Harvest Information Program (HIP) registrants that indicated that they had hunted ducks in the past year. The goal of the survey was to understand the relative importance of the objectives identified by the task forces and to appropriately weight them for the SDM process in each zone.

Of the 6,000 duck hunters surveyed, nearly 50% (2,791) completed the questionnaire and provided feedback on what they value. We directly incorporated their input in the season setting process. Of those who responded, almost 1,500 indicated the Western Zone is where the season dates are most important to them. On average, respondents in the Western Zone spent 13.1 days duck hunting each season.

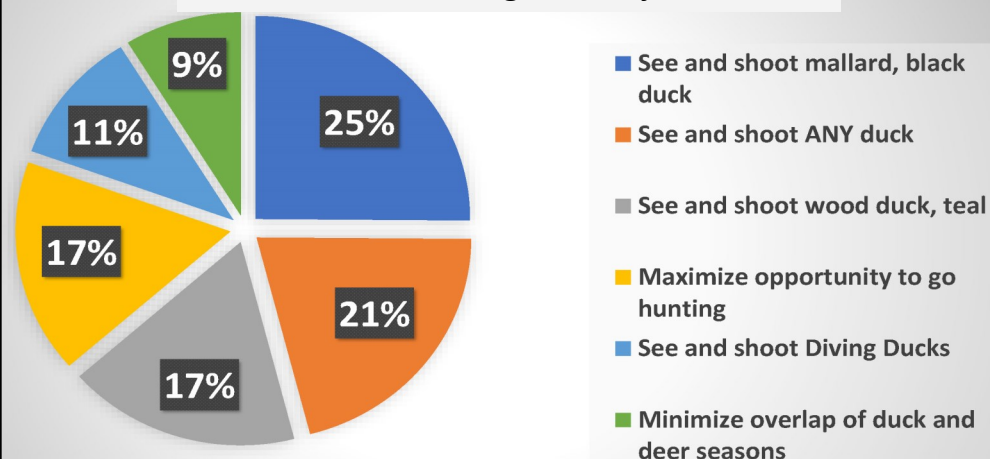
Western Zone duck hunters valued the opportunity to see and shoot mallards and black ducks above all other objectives, followed closely by ANY duck, wood ducks and teal, and maximizing the opportunity to go hunting (see table to the left). Less important to Western Zone duck hunters was the opportunity to see and shoot diving ducks and minimizing the overlap of duck and deer seasons.

DEC and Cornell calculated a weight for each objective based on the survey results to evaluate the tradeoffs of selecting each alternative. The figure (bottom left) shows the weights assigned to each objective for the SDM evaluation. Maximizing the opportunity to see and shoot mallards and black ducks received nearly 3 times as much weight in the decision process compared to minimizing the overlap of deer and duck seasons (25% vs. 9%). Weighting objectives acknowledges that although some objectives are not as important as others, they are still important to duck hunters to some degree. It also ensures that a less important objective is not the main driving force selecting the optimal season alternative.

Objectives	Mean Ranked Importance*
See and shoot mallard, black duck	2.3
See and shoot ANY duck	2.8
See and shoot wood duck, teal	3.3
Maximize opportunity to go hunting	3.4
See and shoot Diving Ducks	4.4
Minimize overlap of duck and deer seasons	4.8

*(1 = Most Important to 6 = Least Important)

Western Zone Weighted Objectives**

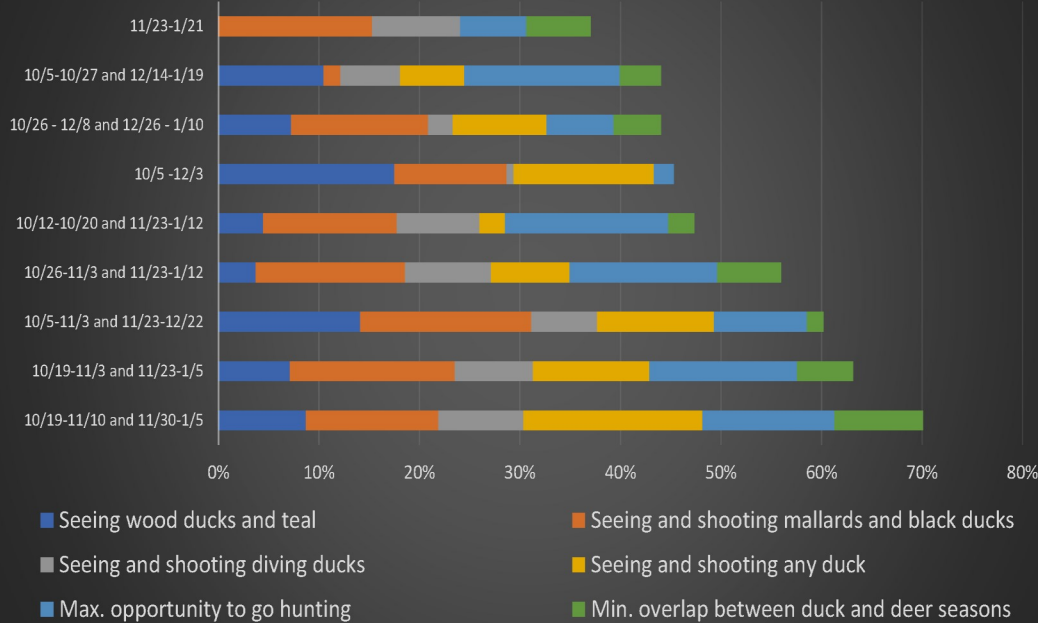


**Weights in this figure were calculated from the “ranked importance” provided by survey respondents

Western Zone Duck Season Alternatives and Recommended Dates

Based on the values of duck hunters and migration and abundance data in the Western Zone, the **optimal duck season begins on the 3rd Saturday in October, runs for 23 days, and ends on a Sunday. The second split opens the last Saturday in November, runs 37 days, and ends on a Sunday.**

Western Zone - Tradeoffs and Consequences

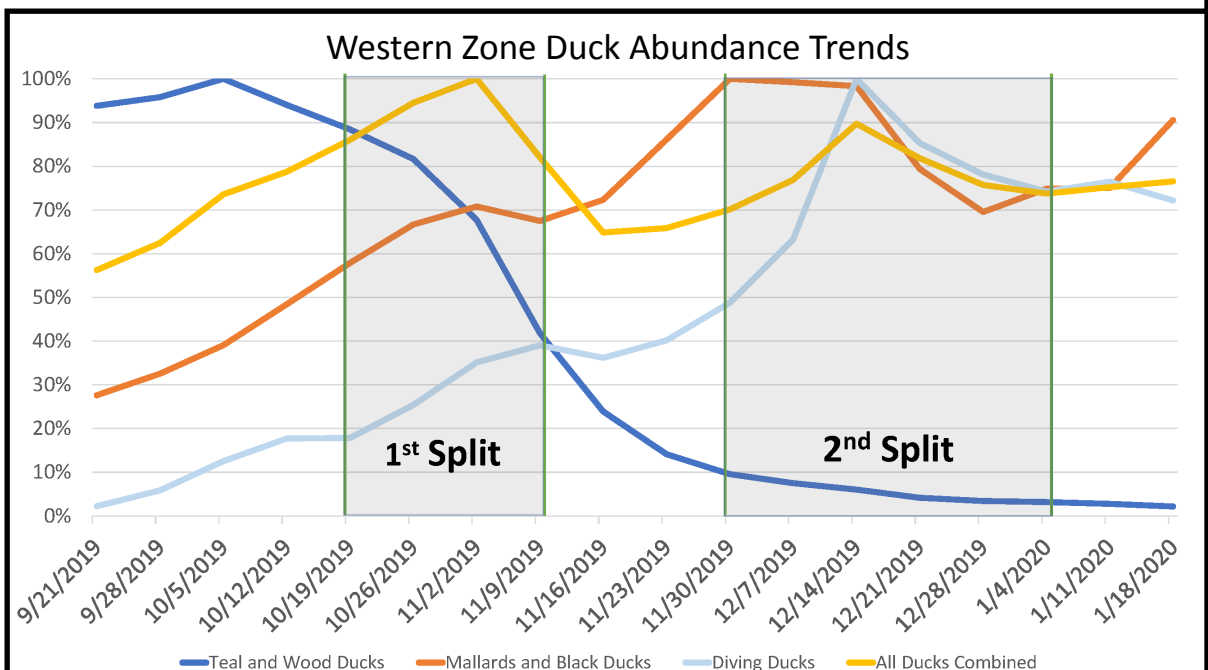


In the figure (left), the colored bars represent how well each season alternative satisfied each objective (i.e., the longer the bar, the better that alternative performed). The optimal season alternative for 2019-2020 (Oct. 19 – Nov. 10 and Nov. 30 – Jan. 5) did the best job balancing the objectives identified by duck hunters as important to their hunting experience. This season alternative was effective at capturing hunting opportunity for any duck species, including weekends and holidays, and avoiding overlap with deer seasons.

How does the Optimal Season Overlap with Duck Migration and Abundance?

The figure (bottom right) shows how the optimal season overlaps with peak duck abundance for the species groups included in the SDM objectives. The values are on a scale of 0% (when relative abundance of the species group is lowest) to 100% (the highest abundance for the species group).

The optimal season dates effectively captured the period when duck abundance is high for all species groups and the majority of migration for most species. The figure also shows how duck migration occurs throughout the fall, highlighting the challenges of selecting the “best” duck season dates.



6. Decide and Take Action - the Next Steps for Selecting Duck and Other Waterfowl Season Dates

Starting with the 2019-2020 hunting season, DEC intends to adopt the Western Zone duck season dates recommended by the SDM process: **beginning the 3rd Saturday in October, running for 23 days, ending on a Sunday, and a second split beginning on last Saturday in November, running 37**

days, and ending on a Sunday. This season dates formula will be used for a period of 5 years (barring any changes to the federal framework). Should the season length be shortened during that time frame, DEC will work with the task force to develop a new suite of alternatives that conform to the revised federal framework (e.g., 45-day or 30-day seasons). Final duck and other migratory game bird season dates will be posted on the DEC webpage by mid-summer each year. A 5-year schedule allows hunters to plan ahead and the timeframe is short enough that duck migration timing is unlikely to change significantly. After a period of 5 years, DEC will work with the Waterfowl Hunter Task Force to update the process and incorporate the latest duck migration and abundance data.

Beyond assisting with the SDM process for setting duck seasons, the Waterfowl Hunter Task Forces will continue to be involved in recommending Canada goose, snow goose, brant, and youth season dates.

Hunters can provide feedback on Canada goose, snow goose, brant, and youth season dates by:

- directly contacting one of the task force members in your zone - the list of members can be found on the [DEC web-site](#)
- sending an email to the Waterfowl Season Input Mailbox (seasonwaterfowl@dec.ny.gov) - suggestions sent to this inbox will be forwarded to all task force members in the zone.

