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Report to the Joint Standing Committee on Inland Fisheries and Wildlife

As Required by 12 MSRA Section 11552

Proposed Actions for Moose Management in Regards to the
Number of Permits Issued, the Length and Timing of the Annual
Moose Hunting Season



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In response to the requirements set forth in Title 12 MSRA, 11552, subsection 2, the Department of Inland Fisheries and Wildlife submits the following report on the actions taken and proposals for the management of moose relative to the number of permits, season timing, and the areas open to hunting.

Highlights of 2014 Moose Report

- Overview of management actions taken
 - Conducted helicopter composition surveys in 9 Wildlife Management Districts (WMDs)
 - Conducted helicopter abundance counts in 3 WMDs
- Review of 2013 moose hunt
 - Record harvest of 2,978
- 2014 Moose season information
 - Recommendation of 4,085 permits
- Controlled moose hunt summary
 - Successful 5th year of operation, 31 moose harvested
- Review and report on commencement of adult female and calf survival study
 - Study initiated in WMD 8 in January with 60 moose (30 adult females and 30 calves) radio collared with GPS collars

Moose Management Actions

MDIFW has publicly derived management goals and objectives for many of the species it manages, including moose. Current moose management goals and objectives are to manage moose in northern, western, and Downeast Maine (the Recreation Management Area) at a level that would maximize both hunting and viewing opportunities. Whereas, in northeastern Maine and in several WMDs in central Maine (the Compromise Management Area) the goal is to balance the public's concern about moose/vehicle collisions with the public's desire to hunt and view moose. The moose management goal in southern coastal Maine (the Road Safety Management Area) is to reduce the moose population to the extent necessary to minimize the danger to motorists.

After 4 winters, Department staff has completed aerial surveys (flights to estimate moose numbers and flights to determine composition of bulls, cows and calves) of the majority of our state's prime moose range. In collaboration with the Maine Forest Service Ranger Pilots, the Department conducted double count aerial surveys for estimating moose abundance across 83% of this area (Wildlife Management Districts 1-6, 8, 9, 11 and 19). This technique provides the Department with a statistically reliable method for estimating moose populations. The moose population in the WMDs that were surveyed is representative of the core of Maine's moose population. Although WMDs 7 and 10 were not surveyed because of mountainous terrain and logistical difficulties, IFW biologists can estimate moose densities in these WMDs based on moose harvest rates, habitat characteristics, and moose sighting rates. We anticipate having the ability to conduct aerial surveys in WMD 10 at a later date. In the fall of 2012, the Department released a statewide moose estimate based on this work. In conjunction with the helicopter double count estimates staff have also completed aerial surveys (composition counts) that allow determination of the percent of bull, cows and calves in these units. To date, surveys

have been completed in WMDs 1-9, 14, and 19. These surveys provide us with reliable data on bull to cow ratios which is one of the essential and required measurements in the moose management system. Through our harvest regulations, IFW strives to maintain a certain percentage of mature or prime bulls in each WMD's moose population. This includes ensuring minimum ratios of mature bulls to cows and a minimum ratio of mature bulls among all bulls in the population. If the percentage of bulls falls below the threshold set for a given WMD, the number of bull permits allocated must be reduced.

In addition, we have obtained reliable data on the number of calves per adult cow in these areas. This is one of the most critical pieces of information for managing our moose population. Calf/cow ratios give us insight on changes in moose population growth, whether the moose population is approaching the carrying capacity of the habitat, and on changes in moose calf mortality rates.

Department staff has been evaluating the role of winter ticks and lungworm as a source of mortality in moose. Heavy winter tick loads on moose, especially on calves, can be debilitating and is likely a significant factor in spring moose mortalities. In a bad tick year, not only will there be higher than normal overwinter losses of calves but adults can succumb to heavy tick loads as well. The Department has been working to better understand the frequency of "bad" winter tick years, the geographical distribution of winter ticks across the state, and the effects of ticks on various sex and age classes of moose.

With the collection of reproductive data (ovaries) on moose and the aforementioned survey data, IFW has the ability to reliably assess moose abundance, population composition, and reproduction. However, there is still much to be learned and quantified regarding moose mortality rates. Population modeling of moose has demonstrated that population growth can be very slow. The Department is investigating ways to quantify mortality rates by embarking on a 5-year study of adult female and calf survival (see below). *Thus it is imperative that hunting mortality continues to be carefully controlled and managed based on the best available science.* Current permit allocations reflect both the best available science and uncertainties surrounding moose mortality rates. Given the precipitous decline of moose in Minnesota and concerns in New Hampshire the Department must act prudently in permit recommendations.

Over the last 6 years, permit *increases* in the most northern districts have varied from 10% in WMD 3 (which already had high permit allocations) to 742% in WMD 2. Downeast, central, and eastern WMDs permit levels have declined and antlerless permits have been reduced either because population objectives have been met or populations are likely below objective. In our most northern WMDs (1, 2, and 4), the Department recognizes the cooperation and responsibilities of landowners within the North Maine Woods where current infrastructure can be stressed during a 6-day moose hunt. The Department is working with these stakeholders to better understand issues between moose hunters and the operations within the working forest. Opportunities to improve the season structure and framework to better address the needs and issues with the North Maine Woods will occur when the Department moves into the next planning phase for

moose management. Given the unknowns regarding moose mortality/survival and logistics within the northern commercial forestlands it remains prudent to increase permits carefully to address all of these issues.

The Department has moved into a very positive position where we can reliably and effectively assess moose population dynamics in Maine and provide the highest level of management for the people of the state. With financial support and our continued partnership with the Maine Forest Service and University of Maine Animal Health Lab we will continue to move Maine to the forefront of moose management.

2013 Moose Season Summary

Maine moose hunters could hunt moose for 6 days by permit within the structure of a split season framework (September/October/November) during 2013. The September season, which occurred in WMDs 1-6, 11, and 19, ran from the 23rd to the 28th; the October season, which occurred in WMDs 1-14, 17-19, 27, and 28, ran from the 14th through the 19th; , and the November season ran from the 4th to the 9th. In addition, 2013 marked the fifth November moose hunt in Department history and covered southern WMDs 15, 16, 23 and 26. WMDs 22 and 25 were added as well for 2011. The southern hunt ran concurrent with the November deer season from November 4th to November 30th and opened for Maine residents on November 2nd. The Department timed this hunt to provide additional opportunity for hunters who wanted to hunt moose, which occur in low densities in these WMDS, along with deer. By combining moose and deer hunting in the same season the Department was able to alleviate landowner concerns about creating another separate hunt in southern Maine.

The annual allocation of moose permits is related to the publicly-derived management goals for each WMD. Permit levels may change from one year to the next if significant changes occur in moose abundance, population composition, or if management objectives have been reached. The Department's implementation of aerial surveys and collection of reproductive data is enabling biologists to make permit recommendations based on more reliable data than has historically been available for moose management.

The southern Maine moose hunt in WMDs 15, 16, 22, 23, 25 and 26, provided an additional 130 Any-moose Permits. An Any-moose Permit allows the permittee to harvest either a bull or cow. The total number of moose permits issued in 2013 was 4,110.

Overall, hunters registered 2,978 moose in 2013 (833 in September, 1,314 in October, and 831 in November) making this a record moose harvest for the state. While hunting conditions were favorable in September, the temperatures in October were warm and reduced hunter success. Hunter success rates averaged 88%, 69%, and 71% for the September, October, and November North seasons, respectively. For the southern Maine moose hunt, the overall success rate was 20% as would be expected under low moose densities. We provided additional materials on IFW's website to ensure that prospective hunters are fully aware of the conditions, land access and lower success rates for the southern Maine moose hunt.

2014 Moose Season Framework

In 2014, there will be 4 separate moose hunting periods in Maine – a September hunt, October hunt, and 2 hunts in November. The September season will run from September 22nd to September 27th in WMDs 1-6, 11 and 19; the October season from October 13th through the 18th and include WMDs 1-14, 17-19, 27, and 28. The November season in WMDs 1-8 and 19 will run from November 3rd through November 8th. In WMDs 15, 16, 22, 23, 25 and 26, the season will coincide with November's deer season running from November 3rd through November 29th. Opening day for Mainers will be Saturday November 1st.

For 2014, WMDs 1-8 and 19 will offer an additional moose hunt in November. This hunt will occur from the 3rd through the 8th of the month. The additional hunt was promulgated in response to a change in management strategy in WMD 2 that required an increase in permit allocations to reduce moose abundance (a result of LD 929 An Act to Expand the Moose Hunting Season). For the sixth year the Department will allocate a total of 130 permits for any moose (bull, cow, or calf) in southern sections of the state (WMDs 15, 16, 22, 23, 25 and 26). In total, the Department recommended 4,085 permits for the 2014 moose hunt.

Prospects for the 2014 Recreational Moose Hunt

Given the Department's aerial survey work, we have statistically reliable estimates of moose abundance across northern Maine, our best moose habitat. Better estimates of moose abundance has allowed the Department to provide additional hunting opportunities in some areas while reducing permits in other areas to best meet our management population goals and objectives. As additional data are collected on moose populations across the state the Department will be able to continue to fine tune permit allocations to meet the needs of the public and respond to population changes over time.

Controlled Moose Hunt in Eastern Aroostook County

Prior to implementing the controlled hunt in Eastern Aroostook County, the Department used depredation permits and increased recreational moose hunting permits to reduce crop depredation and moose / vehicle collisions. These efforts had limited success. It was anticipated that a controlled hunt would provide a focused, site-specific, management effort to reduce crop depredation and increase road safety.

With public input, the Department conducted a controlled moose hunt in nine towns in eastern Aroostook County from 2009 to 2013. The purpose of the controlled hunt was to 1) reduce the incidence of crop depredation in selected towns (commercial broccoli fields), and to 2) reduce the incidence of moose / vehicle collisions along the Route 1 and Route 161 corridor. **The controlled hunt was not a recreational hunt.**

The controlled hunts occurred between mid-August and the start of the September recreational moose hunt. Controlled hunts were not open to all hunters. Persons eligible

to apply for permits [awarded via lottery] included landowners and registered Maine guides who met certain eligibility requirements.

Each of the selected guides received three moose permits (one for each of three permittees chosen at the discretion of the guide - guides were not eligible to hunt). Of the three issued permits, one was an Any-moose Permit and two were Antlerless-only Permits. The controlled moose hunt rule required that Registered Maine Guides, who received permits, guide their permittees in agricultural areas designated by the Department. In addition, each selected Registered Maine Guide was required to attend a Department sponsored training session. Landowners who received a permit were required to hunt on their own eligible land. However, IFW's Commissioner could authorize a landowner to use his/her permit to hunt on other designated lands open to hunting. Permits issued under this controlled hunt were exempt from the provisions of the moose permit point system of the recreational moose hunt. A person who received a controlled moose hunting permit was exempt from the two-year eligibility requirement of the recreational moose hunt. All other fees, laws and rules relating to moose hunting applied to the controlled hunt.

Hunters harvested a total of 81, 72, 60, 32 and 31 moose in the 2009, 2010, 2011, 2012, and 2013 controlled hunts, respectively.

Following the 2014 controlled moose hunt, IFW biologists and wardens discussed the hunt results and associated issues with representatives of the Smith and Ayer Farms, with the focus on possible improvements for future controlled hunts in eastern Aroostook County. After considerable and critical discussion it was recommended that the controlled hunt utilize only Disabled Veterans. This recommendation was based, in part, on the low hunting success rates of landowners and violations associated with guides. The Disabled Veteran portion of the hunt has proved to be the most effective and successful way to fulfill controlled hunt objectives. The Department recommended reducing permit levels to 25 for Disabled Veterans. The Department has met population objectives for WMD 3 and 6; and thus has reduced permit allocations in WMD 6 (maintain permit levels in WMD 3) to ensure maintaining current moose numbers.

Moose Adult Female and Calf Survival Project Update

The Aerotech Moose Capture team, with the cooperation of Maine Forest Service pilots, Warden Service, and IFW wildlife biologists, captured and radiocollared 60 moose in four days. Moose were captured and radiocollared in WMD 8. Forest Service pilots accompanied by IFW wildlife biologists located adult female moose and calves using a Forest Service helicopter. Locations were given to the Aerotech crew to facilitate their capture effort. This aerial reconnaissance allowed the Aerotech crew to focus on moose captures, rather than locating and capturing moose. Moose were netted from the air using a net gun, after which, crews hobbled the animal, took biological samples, and radiocollared it. On the first day, February 29, 17 moose were captured, followed by captures of 20, 16, and 7 moose on successive days. All moose were captured via net gunning with only 3 moose needing additional chemical immobilization. Biological samples including blood, feces and hair were collected from the majority of animals. In

addition most animals had a winter tick count conducted on them and a photograph after capture.

IFW receives daily GPS locations on all 60 moose. All moose that have been reviewed so far have moved from their original capture locations. We will continue to closely monitor moose for any post-capture related problems. The University of Maine-Animal Health Lab (UMAHL) will be processing all blood and fecal samples from Maine, and biological samples from 43 moose captured for New Hampshire the previous week. UMAHL will analyze the blood to determine the condition of the animal and examine feces for evidence of internal parasites. Blood samples will also be sent to other labs to determine the degree to which moose have been exposed to heavy metals and vector borne diseases. Results between New Hampshire and Maine will be compared and further assessed.

By conducting the first assessment of moose survival since the 1980s, this project will quantify several population parameters that are critical to the function of the moose management system. This includes measures of adult cow survival, calf survival and productivity. These elements provide the basis for quantifying population growth and decline and thus allowable harvest. This project will greatly assist IFW meet the moose management system's goal of “maximizes hunting and viewing opportunities”.

Lastly, data from this project will provide insight and confidence to the Department and the public on moose population health. Along with research being conducted in New Hampshire this information will provide reliable data to evaluate and compare survival within a broader regional context. If moose survival is lower than expected, or if we uncover previously unknown disease vectors or other areas of concern, we will use this information to intensify our investigation or determine additional and appropriate courses of action.