

July 24, 2023

Mr. Ken Richkus
Division Chief, Migratory Bird Management
U.S. Fish and Wildlife Service
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RE: Comments on the Development of a Revised Pintail Model

Dear Mr. Richkus:

As the U.S. Fish and Wildlife Service continues its important work on updating the northern pintail Adaptive Harvest Management (AHM) strategy, we would like to provide the following comments. We strongly urge that these suggestions and input be incorporated into the new model to be used for annually setting pintail season and bag limit frameworks. (Full references with citations can be provided upon request.)

1. The Breeding Population Survey (BPOP) substantially underestimates number of pintails. Lincoln estimates of abundance are typically 2-3 times as large as the BPOP. Combined with the potential that the Harvest Information Program potentially overestimates harvest; when these two pieces of data are used to model population dynamics, harvest rate is severely overestimated. In the "original" pintail model used to set regulations, the HIP/BPOP ratio was on the order of double the band recovery rate adjusted for reporting rate, indicating that the harvest rate in the model was far greater than the true harvest rate. This problem could be resolved by deploying Lincoln estimates, where the potential bias in population estimates (introduced by bias in HIP estimates) is the same as the bias in harvest estimates; a duck is a duck.
2. Lincoln estimates of the numbers of males and females indicate that the current sex ratio in the pintail population is about 3 males per female (similar to the situation for mallards). The diverging sex ratio creates several problems for harvest management if not accounted for. First, it invalidates the assumption that "single" males are all paired; many (most?) single males must be unpaired because there are not enough females for every male to have a mate. Consequently, the BPOP overestimates the number of females as a proportion of the population, which caused population models in earlier versions of AHM models to continuously overestimate production, necessitating the incorporation of "fudge factors" in models to reduce prediction bias. Second, failure to account for excess males substantially reduces harvest opportunity, given that female abundance regulates duck populations. Given that few hunters regularly shoot a limit of ducks, it seems possible to return to a full seven bird pintail bag, with a limit of one hen, similar to the way mallards have been managed. This approach has the added benefit of helping to return the population to a balanced sex ratio. One could argue that such an approach would actually enhance the pintail population because excess males are

potentially interfering with female foraging, nutrient storage and nesting activities, thereby reducing productivity.

3. Past models did not account for highly variable conditions on breeding areas and the potential that demographic rates are more strongly driven by variation in recruitment and predation risk by breeding females than by harvest.
4. Past models assumed that harvest was fully additive. Recent work with mallards and blue-winged teal has shown that current approaches to assessing harvest effects on annual survival dramatically overestimate the effects of harvest. For example, in blue-winged teal, approaches like those favored by the USFWS would estimate that three teal die for every one that is shot by a hunter. There is strong evidence of density dependent effects on natural mortality in recent work that is driving these spurious relationships between harvest and survival but such density dependent effects have not been appropriately incorporated into past harvest management models.

As has been previously discussed with California Waterfowl, once a draft model is available, we look forward to the opportunity for review and comment. Waterfowl conservation organizations and other science-based interests outside of the U.S. Fish and Wildlife Service, such as ours, represent valid interests of thousands of waterfowlers. Our input is important.

Thank you for the opportunity to comment, and we very much appreciate the U.S. Fish and Wildlife Service's efforts to produce a draft model that incorporates all relevant science and input by affected stakeholders. Should you like to discuss our comments further, please let us know. Thank you.

Sincerely,

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