

## **Wetland bird use of coastal impoundments and response to experimental manipulation of water-levels in Southeastern New Brunswick**

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Coastal wetlands have been lost at an alarming rate, with particularly high rates in Atlantic Canada. Because of this, Ducks Unlimited Canada and other organizations have built freshwater wetlands (“impoundments”) to compensate for wetland loss and to provide habitat for wetland wildlife, particularly waterfowl. These sites appeared to be very productive habitat in their early stages, however, wildlife managers noted declines in productivity and wildlife use as these impoundments aged. We wanted to understand how wetland wildlife, mainly waterfowl, are using these sites in the early breeding season (April, May, June), which overlaps with late migration and early breeding season for several species. We also experimentally manipulated several impoundments, through water-level drawdown, to test immediate responses by wildlife to this management strategy. Water-level drawdown has been shown to rejuvenate productivity in aging impoundments and increase use by wildlife. We compared responses of several different bird species to water-level drawdown by comparing the before, during, and after drawdown occupancy and abundance at control and treatment sites through bird surveys at 21 impoundments in Southeastern New Brunswick. Through generalized additive modelling, we found differences in how species use these sites temporally, suggesting that these impoundments may be important to species for different life history stages. We also found differences in how species responded to drawdowns, with some species having positive responses, while other responded negatively. Given these results, we suggest that managers consider drawing down impoundments asynchronously to benefit several species at the same time. Additionally, we recommend future research on drawdown duration and long-term effects of manipulation in coastal impoundments.

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