

Results of the Annual Mid-winter Waterfowl Survey on  
Lake Mattamuskeet and Surrounding Farm Fields (1961-2014)



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## Purpose

Each year since 1961, North Carolina has participated in the Mid-winter Waterfowl Survey. This cooperative survey is conducted annually by the US Fish and Wildlife Service and state wildlife agencies. The Mid-winter Waterfowl Survey is a nationwide effort designed to provide annual estimates of waterfowl populations and distributions on their major wintering areas. This survey also serves as a primary source of data on population trends for some species that breed in remote Arctic locations (e.g. Atlantic brant, tundra swan) and are difficult to survey using traditional methods. Therefore, abundance indices for some of these species are obtained from surveys on wintering areas. For species not covered in other population surveys these indices provide direct inputs into management programs such as harvest management plans.

## Survey Protocol

The survey design and field procedures used to conduct the Mid-winter Waterfowl survey are determined by the individual states. The Mid-winter Survey is conducted primarily by fixed-wing aircraft, although some states use helicopters and/or conduct counts from automobile or boat in some areas. The Mid-winter Survey is known as a “cruise” survey because specific, predefined transects are not defined. Instead, an aerial crew determines the best and most practical means to conduct a complete count of all waterfowl within a predefined survey unit. Because no statistical sampling design is employed, statistical variation cannot be computed for annual Mid-winter Survey counts. The exact means of coverage may vary from year to year; however, the objective is to obtain a complete count of all waterfowl within a survey unit. The survey is typically begins the first week of January.

## The Mid-winter Survey in North Carolina

The Mid-winter Survey in North Carolina is conducted primarily in the eastern portion of the state where wintering waterfowl numbers are highest. The survey coverage area is divided into units that generally encompass individual bodies of water and/or agricultural field complexes. This report summarizes data only for ducks and tundra swans, and only within Mid-winter Survey Unit 5, which includes Lake Mattamuskeet NWR and the surrounding farms and fields. Data are summarized for ducks during 1961-2013, and include dabbling ducks, diving ducks, mergansers, and coots. Data are summarized for tundra swans for 1961-2014.

### Summary: Trends in Duck Numbers Observed in Unit 5, 1961-2013 (Figures 1-4)

- During the period 1961-2013, the total number of ducks (dabblers, divers, mergansers, and coots) observed during the Mid-winter Waterfowl Survey on Unit 5 has averaged 56,891 ducks.
- Since 2006, the total number of ducks observed on Unit 5 has averaged 168,343 ducks, which is well above the long term average (LTA) of 56,891.
- Since 1961, the total number of ducks observed on Unit 5 has exceeded 100,000 ducks in only 7 survey years. Six of those survey years have occurred during the period 2007-2013.
- The total numbers of ducks observed on Unit 5 has exceeded 200,000 ducks in only 3 survey years, all occurring during the period 2011-2013.
- During the period 1961-2013, the total number of ducks observed in Unit 5 has accounted for an average of 25% of the total number of ducks observed in the entire Mid-winter Waterfowl Survey.
- More recently, the total number of ducks observed in Unit 5 has accounted for a larger percentage of the total ducks observed in the entire Mid-winter Waterfowl Survey. From 1961-2005, Unit 5 accounted for an average of 19% of the total ducks observed, but since 2006 Unit 5 has accounted for 57% of the total ducks observed on the Mid-winter Waterfowl Survey.
- During the period 1961-2013, the total number of dabbling ducks observed during the Mid-winter Waterfowl Survey on Unit 5 has averaged 48,510 ducks, representing on average, 88% of the total ducks observed in Unit 5.
- During the period 1961-2013, the total number of diving ducks observed during the Mid-winter Waterfowl Survey on Unit 5 has averaged 8,253 ducks, representing on average, 11% of the total ducks observed in Unit 5.
- Since 2006, the total number of dabbling ducks observed in Unit 5 has averaged 135,812 ducks, well above the long term average of 48,510 dabbling ducks. The highest number of dabbling ducks observed in Unit 5 during the period 1961-2013 occurred in 2011 and 2012, with numbers approaching 200,000 ducks. Currently gadwall, wigeon, green-winged teal, and pintails are well above their Unit 5 long term averages, and account for the majority of dabbling ducks observed.
- Since 2006, the total number of diving ducks observed in Unit 5 has averaged 32,495 ducks, well above the long term average of 8,253 diving ducks. The highest number of diving ducks observed in Unit 5 during the period 1961-2013 occurred in 2011 and 2013, with numbers approaching 60,000 ducks. Currently redheads and ring-necked ducks are well above their Unit 5 long term averages, and account for the majority of diving ducks observed.

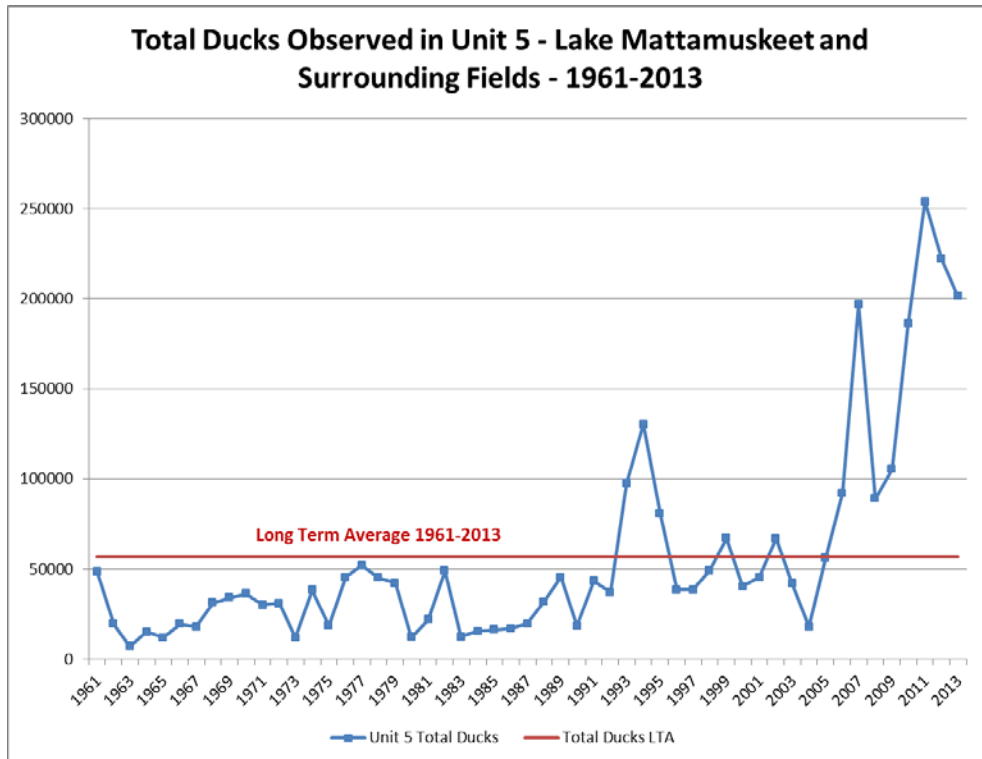


Figure 1.

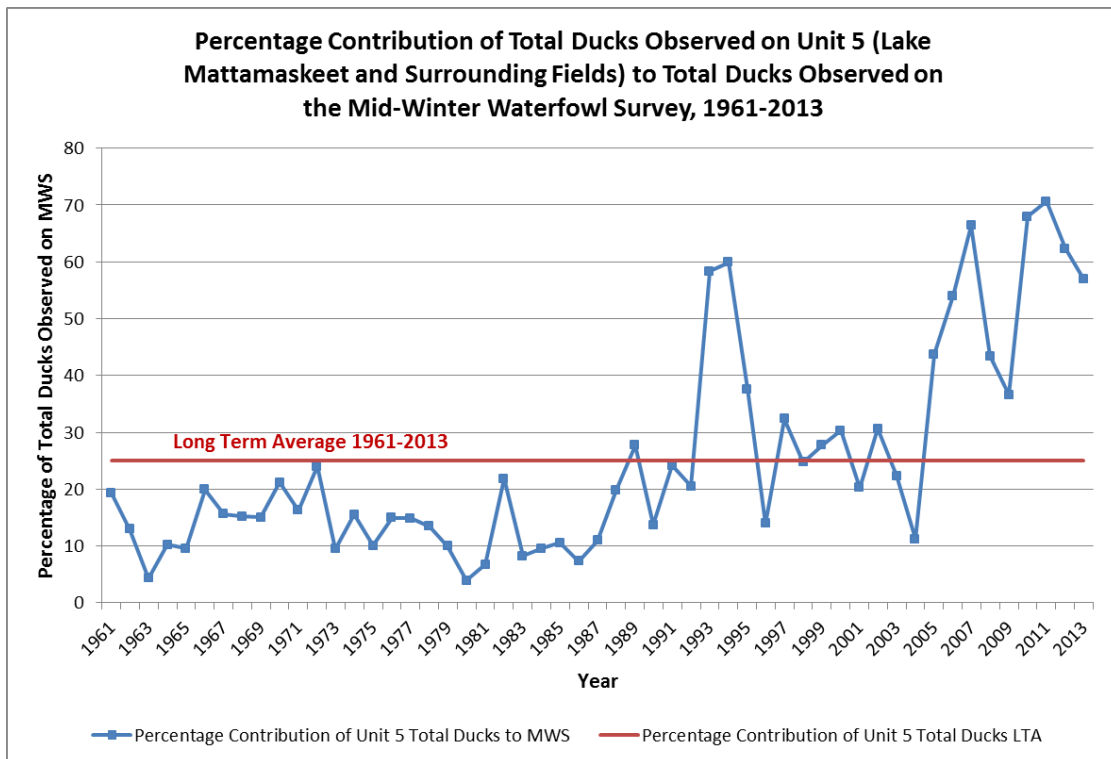


Figure 2.

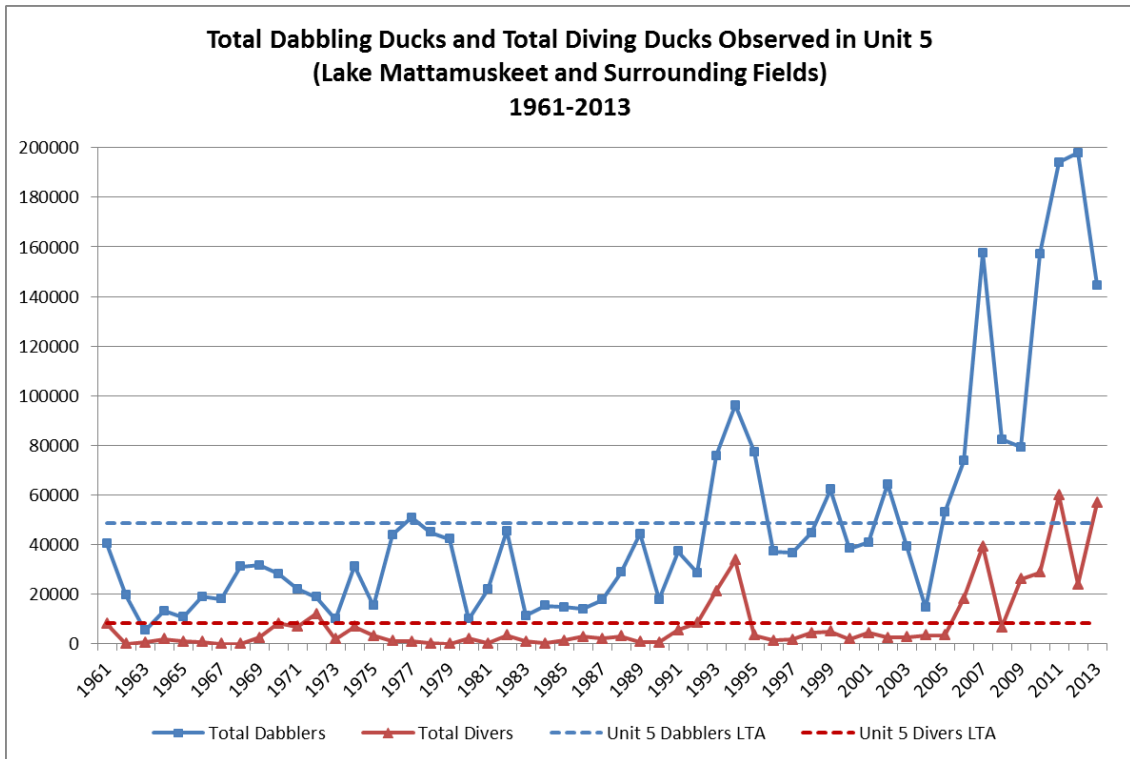


Figure 3.

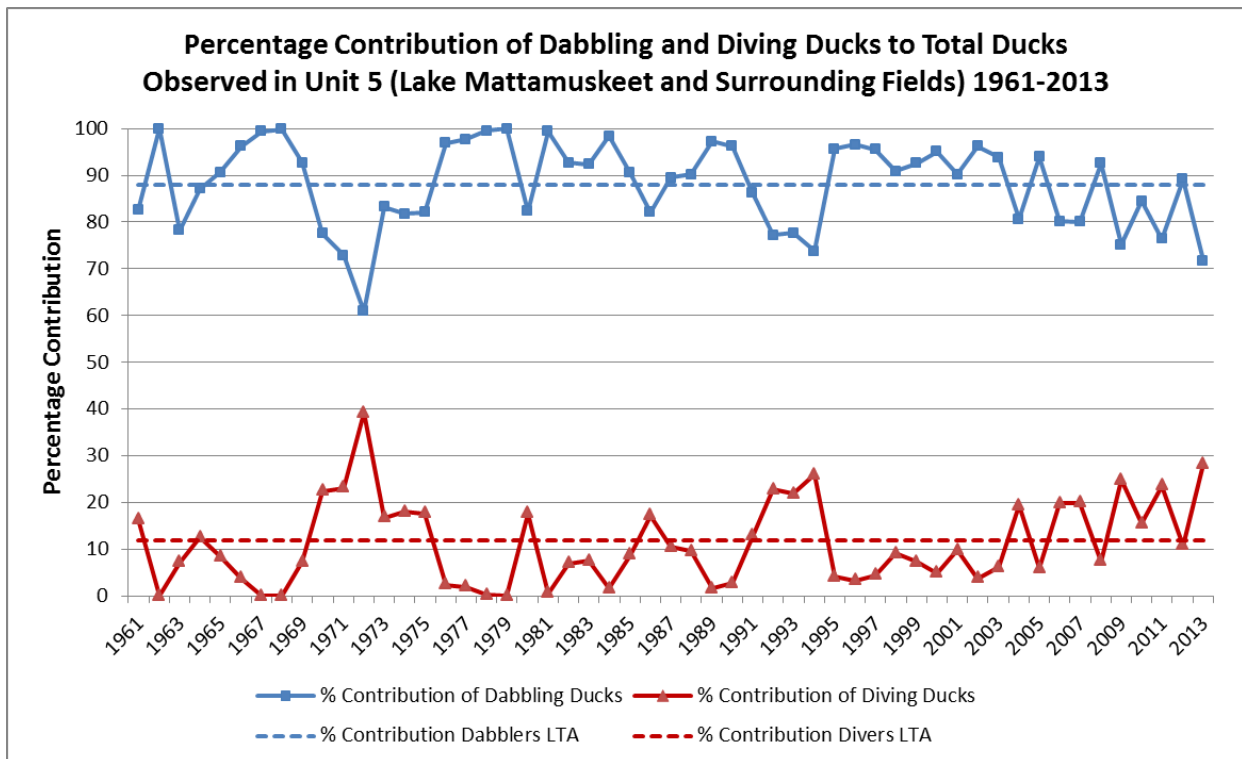


Figure 4.

### Summary: Trends in Tundra Swan Numbers Observed in Unit 5, 1961-2014 (Figures 5-6)

- During the period 1961-2014, the total number of tundra swans observed during the Mid-winter Waterfowl Survey in Unit 5 has averaged 14,809 swans.
- From 1961-1981, the total number of tundra swans observed in Unit 5 has averaged below (9,385 swans) the 1961-2014 Unit 5 long term average, while the total number of swans observed during the period 1982-2014 has averaged above (20,636 swans) the 1961-2014 long term average.
- In 2013 and 2014, the total number of tundra swans observed during the Mid-winter Waterfowl Survey on Unit 5 (12,726 and 17,940 respectively) were the lowest since the years 2000 and 2001.
- During the period 1961-2013, the total number of tundra swans observed in Unit 5 has accounted for an average of 30% of the total number of swans observed in the entire Mid-winter Waterfowl Survey. In 2013, this average fell below 30% for the first time since 2002.
- At this time, Wildlife Resources Commission biologists believe there is evidence that a redistribution of tundra swans is occurring across some Mid-winter Waterfowl Survey units. Additionally, it appears tundra swan numbers could be increasing within previously unused or lightly utilized areas outside of what has been traditionally included in the Mid-winter Waterfowl survey. Staff biologists will continue to monitor this occurrence, but the total number of swans observed on the Mid-winter Waterfowl Survey continue to be well above the 1961-2013 long term average.

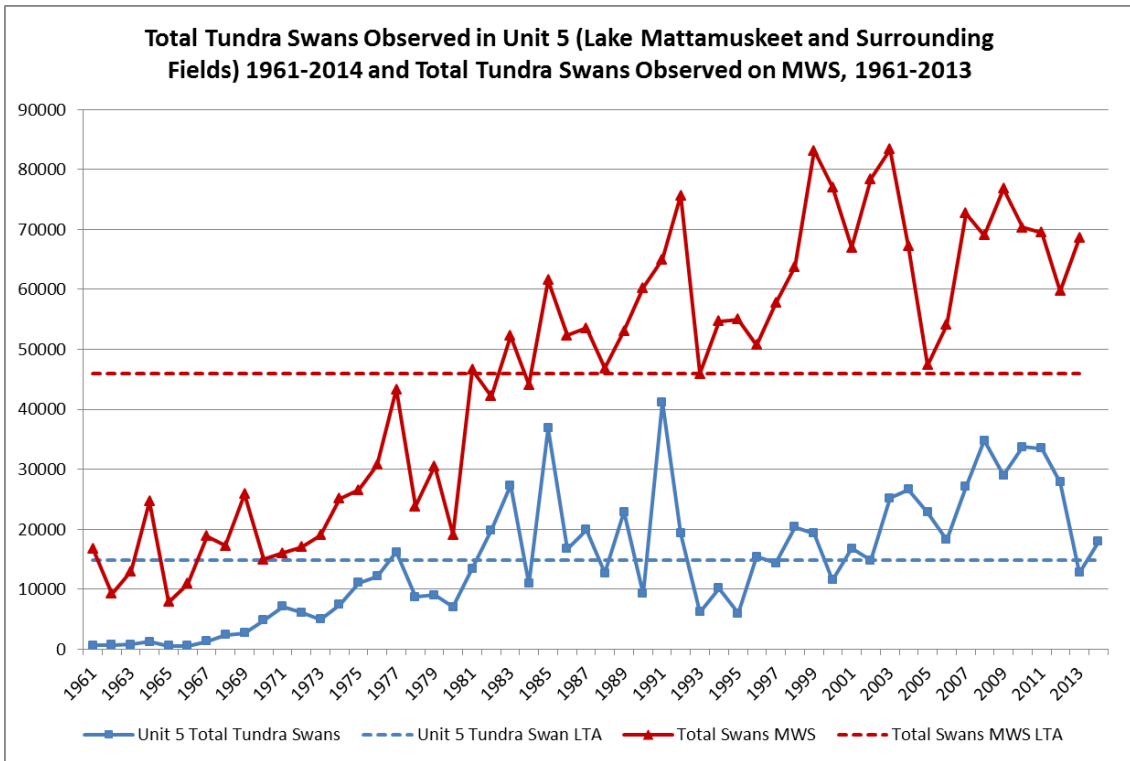


Figure 5.

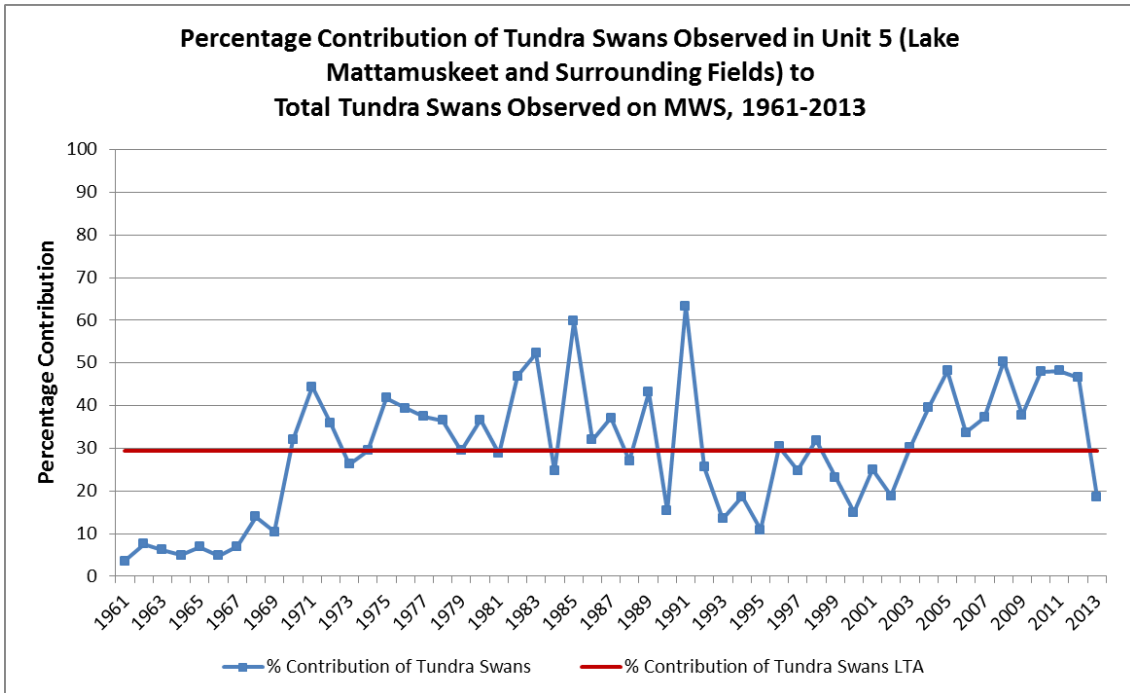


Figure 6.