

REPORT ON POPULATION STATUS AND PRODUCTIVITY OF EASTERN POPULATION TUNDRA SWANS AND ATLANTIC BRANT

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PURPOSE

Harvest management of Atlantic brant and tundra swans relies on information about population size. In addition, productivity estimates provide insight into population trajectory that the Atlantic Flyway Council may take into consideration when discussing harvest management or other population goals. This report summarizes results from 2017-2018 Atlantic brant and eastern population tundra swan productivity and population surveys.

METHODS

Atlantic Flyway productivity surveys for Atlantic brant and tundra swans have been conducted annually since 1978. Productivity data are collected following the 2007 draft USFWS document “Standard operating procedures for productivity surveys of geese, swans, and brant.” Each state or province has a sample size of birds where they attempt to enumerate the age of Atlantic brant and tundra swans and determine the number of young per family group. Productivity surveys occur in November and December each year.

Population size data are traditionally collected during annual midwinter survey counts. Since 2016, in states that no longer conduct midwinter surveys, states that traditionally have wintering populations of Atlantic brant and tundra swans conduct ground or aerial counts of these species. Mid-winter, and Atlantic brant and tundra swan specific, surveys are conducted in early January.

RESULTS

The Atlantic brant productivity estimate was down about 1% from the long-term average (Table 1). Surveys in 2017 indicated mean percent immature birds in the population of 18%, an estimate that is higher than many recent years but still over 25% below the long-term average. Estimated productivity of eastern population tundra swans in 2017 was 12% immature birds (Table 2). This estimate is similar to the best five years but down 12% from the long-term average.

Atlantic brant counts were up from 2017 count of 161,661 to 165,828 in 2018 (Table 3). This is the highest number of birds counted since 1999. The Atlantic Flyway portion of the eastern population tundra swan total count in 2018 was 111,077 (Table 4). As of this report Mississippi Flyway and Ontario counts have not been reported. The 111,000 tundra swans counted is slightly down from the 2017 count of 115,425.

Table 1. Historical Population and Productivity Data for the Atlantic Flyway - Atlantic Brant

| Year | Number | Families | | Other | | Total | Total | Total | Percent | Average Young | |
|-------|-----------------|---------------|-----------------|--------------------|-----------------|---------------|-----------------|--------------|-----------------|-------------------|--|
| | <u>Families</u> | <u>Adults</u> | <u>Immature</u> | <u>Adults</u> | <u>Immature</u> | <u>Adults</u> | <u>Immature</u> | <u>Birds</u> | <u>Immature</u> | <u>Per Family</u> | |
| 1976 | 104 | 208 | 246 | 6312 | 393 | 6,520 | 639 | 7,159 | 8.9 | 2.4 | |
| 1977 | 162 | 311 | 379 | 8200 | 3177 | 8,511 | 3,556 | 12,067 | 29.5 | 2.3 | |
| 1978 | 144 | 284 | 308 | 10,362 | 361 | 10,646 | 669 | 11,315 | 5.9 | 2.1 | |
| 1979 | 703 | 1,381 | 1,955 | 7,233 | 4,024 | 8,614 | 5,979 | 14,593 | 41.0 | 2.8 | |
| 1980 | 622 | 1,232 | 1,637 | 15,247 | 6,733 | 16,479 | 8,370 | 24,849 | 33.7 | 2.6 | |
| 1981 | 523 | 1,040 | 1,249 | 11,444 | 2,124 | 12,484 | 3,373 | 15,857 | 21.3 | 2.4 | |
| 1982 | 429 | 1,002 | 1,009 | 14,863 | 3,853 | 15,865 | 4,862 | 20,727 | 23.5 | 2.4 | |
| 1983 | 292 | 581 | 780 | 12,172 | 5,293 | 12,753 | 6,073 | 18,826 | 32.3 | 2.7 | |
| 1984 | 335 | 655 | 789 | 11,310 | 2,456 | 11,965 | 3,245 | 15,210 | 21.3 | 2.4 | |
| 1985 | 283 | 560 | 674 | 14,701 | 2,179 | 15,261 | 2,853 | 18,114 | 15.8 | 2.4 | |
| 1986 | 105 | 210 | 263 | 19,690 | 506 | 19,900 | 769 | 20,669 | 3.7 | 2.5 | |
| 1987 | 313 | 601 | 801 | 11,634 | 3,599 | 12,235 | 4,400 | 16,635 | 26.5 | 2.6 | |
| 1988 | 274 | 542 | 667 | 12,068 | 3,856 | 12,610 | 4,523 | 17,133 | 26.4 | 2.4 | |
| 1989 | 466 | 905 | 1,174 | 12,957 | 2,514 | 13,862 | 3,688 | 17,550 | 21.0 | 2.5 | |
| 1990 | 387 | 732 | 838 | 15,777 | 1,176 | 16,509 | 2,014 | 18,523 | 10.9 | 2.2 | |
| 1991 | 710 | 1,265 | 1,396 | 5,845 | 911 | 7,110 | 2,307 | 9,417 | 24.5 | 2.0 | |
| 1992 | 124 | 242 | 212 | 19,510 | 230 | 19,752 | 442 | 20,194 | 2.2 | 1.7 | |
| 1993 | 1,679 | 3,237 | 3,371 | 15,042 | 1,544 | 18,279 | 4,915 | 23,194 | 21.2 | 2.0 | |
| 1994 | 619 | 1,203 | 1,210 | 18,029 | 968 | 19,232 | 2,178 | 21,410 | 10.2 | 2.0 | |
| 1995 | 1,242 | 2,470 | 2,788 | 11,556 | 1,071 | 14,026 | 3,859 | 17,885 | 21.6 | 2.2 | |
| 1996 | 830 | 1,637 | 1,826 | 19,523 | 2,011 | 21,160 | 3,837 | 24,997 | 15.3 | 2.2 | |
| 1997 | 1,502 | 2,888 | 3,299 | 19,683 | 1,479 | 22,571 | 4,778 | 27,349 | 17.5 | 2.2 | |
| 1998 | 1,006 | 1,990 | 2,621 | 15,545 | 2,942 | 17,535 | 5,563 | 23,098 | 24.1 | 2.6 | |
| 1999 | 185 | 364 | 320 | 36,639 | 235 | 37,003 | 555 | 37,558 | 1.5 | 1.7 | |
| 2000 | 1,305 | 2,542 | 2,769 | 15,098 | 3,155 | 17,640 | 5,924 | 23,564 | 25.1 | 2.1 | |
| 2001 | 811 | 1,571 | 1,738 | 15,308 | 3,787 | 16,879 | 5,525 | 22,404 | 24.7 | 2.1 | |
| 2002 | 637 | 1,214 | 1,157 | 55,047 | 3,045 | 56,261 | 4,202 | 60,463 | 6.9 | 1.8 | |
| 2003 | 1,022 | 1,983 | 2,184 | 19,460 | 2,276 | 21,443 | 4,460 | 25,903 | 17.2 | 2.1 | |
| 2004 | 848 | 1,672 | 1,663 | 22,337 | 1,950 | 24,009 | 3,613 | 27,622 | 13.1 | 2.0 | |
| 2005 | 522 | 1,023 | 1,125 | 14,950 | 2,050 | 15,973 | 3,175 | 19,148 | 16.6 | 2.2 | |
| 2006 | 785 | 1,572 | 2,213 | 14,153 | 2,842 | 15,725 | 5,055 | 20,780 | 24.3 | 2.8 | |
| 2007 | 262 | 523 | 573 | 13,829 | 5,893 | 14,352 | 6,466 | 20,818 | 31.1 | 2.2 | |
| 2008 | 720 | 1419 | 1778 | 31674 | 7086 | 33,093 | 8,864 | 41,957 | 21.1 | 2.5 | |
| 2009 | 382 | 755 | 830 | 36372 | 3004 | 37,127 | 3,834 | 40,961 | 9.4 | 2.2 | |
| 2010 | 546 | 1076 | 1342 | 32624 | 3805 | 33,700 | 5,147 | 38,847 | 13.2 | 2.5 | |
| 2011 | 1,077 | 2096 | 2332 | 20035 | 5138 | 22,131 | 7,470 | 29,601 | 25.2 | 2.2 | |
| 2012 | 37 | 74 | 78 | 10204 | 742 | 10,278 | 820 | 11,098 | 7.4 | 2.1 | |
| 2013 | 73 | 138 | 161 | 28001 | 924 | 28,139 | 1,085 | 29,224 | 3.7 | 2.2 | |
| 2014 | 165 | 344 | 306 | 23655 | 2218 | 23,999 | 2,524 | 26,523 | 9.5 | 1.9 | |
| 2015 | 195 | 377 | 462 | 26171 | 2222 | 26,548 | 2,684 | 29,232 | 9.2 | 2.4 | |
| 2016 | 686 | 1348 | 1553 | 23341 | 6549 | 24,689 | 8,102 | 32,791 | 24.7 | 2.3 | |
| 2017 | 575 | 1140 | 1100 | 22840 | 4105 | 23,980 | 5,205 | 29,185 | 17.8 | 1.9 | |
| | | | | % change from 2016 | | | | | -11.0 | -27.8 | |
| | | | | % change from mean | | | | | 21.6 | -1.1 | |
| MEAN* | 586 | 1,147 | 1,319 | 18,797 | 2,737 | 19,945 | 4,056 | 24,001 | 18 | 2 | |

*(1978-2016)

Table 3. Numbers of Atlantic brant observed during midwinter in the Atlantic Flyway, 2001-2018

| YEAR | MA | CT | RI | NY | NJ | DE | MD | VA | NC | AF TOTAL |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|
| 2001 | 2,204 | 465 | 1,445 | 25,201 | 96,685 | 3,657 | 925 | 14,677 | 0 | 145,259 |
| 2002 | 3,025 | 500 | 940 | 37,675 | 124,590 | 0 | 535 | 14,355 | 0 | 181,620 |
| 2003 | 1,821 | 77 | 3,165 | 22,222 | 118,005 | 601 | 1,510 | 17,125 | 0 | 164,526 |
| 2004 | 1,989 | 1,548 | 401 | 20,748 | 83,850 | 2,271 | 1,295 | 17,480 | 0 | 129,582 |
| 2005 | 875 | 1,415 | 634 | 24,759 | 73,805 | 1,400 | 1,723 | 18,635 | 2 | 123,248 |
| 2006 | 1,760 | 1,002 | 1,750 | 60,324 | 63,815 | 2,145 | 2,353 | 13,122 | 368 | 146,639 |
| 2007 | 2,018 | 1,328 | 1,500 | 65,745 | 67,305 | 1,378 | 505 | 8,906 | 1,874 | 150,559 |
| 2008 | 2,916 | 1,214 | 1,257 | 56,115 | 88,190 | 1,300 | 1,400 | 7,760 | 1,460 | 161,612 |
| 2009 | 2,162 | 1,724 | 1,430 | 57,030 | 73,935 | 219 | 805 | 11,210 | 2,758 | 151,273 |
| 2010 | 1,572 | 935 | 3,509 | 65,580 | 55,485 | 504 | 1,035 | 9,040 | 1,690 | 139,350 |
| 2011 | 1,213 | 1,558 | 4,585 | 67,260 | 61,195 | 525 | 1,465 | 9,875 | 1,210 | 148,886 |
| 2012 | 1,550 | 1,664 | 2,115 | 66,250 | 69,560 | 750 | 548 | 6,720 | 0 | 149,157 |
| 2013 | 2,153 | 940 | 1,411 | 54,100 | 39,730 | 961 | 1,505 | 10,375 | 575 | 111,750 |
| 2014 | 1,185 | 1,144 | 2,970 | 66,543 | 48,535 | 350 | 638 | 11,271 | 300 | 132,936 |
| 2015 | 1,415 | 628 | 2,251 | 51,000 | 43,115 | 100 | 930 | 11,995 | 0 | 111,434 |
| 2016 | 1,128 | 2,019 | 4,059 | 57,265 | 83,894 | 0 | 1,043 | 8,446 | 45 | 157,899 |
| 2017 | 727 | 2,564 | 4,100 | 72,250 | 70,120 | 505 | 900 | 9,805 | 690 | 161,661 |
| 2018 | 1,257 | 129 | 2,193 | 76,770 | 72,190 | 1,050 | 350 | 9,330 | 2,559 | 165,828 |

Table 4. Numbers of eastern population tundra swans observed during midwinter, 2001-2018

| YEAR | NY | PA | NJ | DE | MD | VA | NC | SC | AF TOTAL |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|
| 2001 | 99 | 363 | 197 | 72 | 20,798 | 9,428 | 66,966 | 220 | 98,143 |
| 2002 | 116 | 1,098 | 473 | 920 | 16,610 | 5,994 | 78,394 | 222 | 103,827 |
| 2003 | 205 | 548 | 105 | 802 | 15,112 | 7,725 | 83,351 | 339 | 108,187 |
| 2004 | 8 | 1,261 | 495 | 667 | 17,891 | 7,173 | 67,188 | 292 | 94,975 |
| 2005 | 132 | 786 | 205 | 387 | 13,248 | 6,488 | 47,364 | 125 | 68,735 |
| 2006 | 399 | 2,464 | 165 | 147 | 8,239 | 4,576 | 54,064 | 398 | 70,452 |
| 2007 | 0 | 363 | 290 | 520 | 8,656 | 4,979 | 72,653 | 379 | 87,840 |
| 2008 | 0 | 1,178 | 332 | 651 | 10,580 | 6,738 | 69,023 | NS | 88,502 |
| 2009 | 0 | 783 | 165 | 223 | 14,183 | 6,584 | 76,788 | 578 | 99,304 |
| 2010 | 0 | 89 | 425 | 215 | 14,004 | 6,584 | 70,273 | 319 | 91,909 |
| 2011 | 0 | 316 | 155 | 258 | 14,355 | 8,778 | 69,501 | 404 | 93,767 |
| 2012 | 0 | 691 | 425 | 178 | 16,599 | 8,884 | 59,716 | 300 | 86,793 |
| 2013 | 0 | 1,711 | 183 | 1,392 | 17,330 | 8,987 | 68,578 | 312 | 98,493 |
| 2014 | 0 | 975 | 480 | 264 | 16,145 | 9,399 | 76,276 | 305 | 103,844 |
| 2015 | 461 | 506 | 540 | 273 | 17,837 | 9,194 | 78,663 | 462 | 107,936 |
| 2016 | 0 | 810 | 82 | 341 | 11,220 | 10,368 | 63,466 | 332 | 86,619 |
| 2017 | 0 | 223 | 124 | 329 | 14,495 | 7,475 | 92,193 | 586 | 115,425 |
| 2018 | 0 | 56 | 385 | 2,510 | 16,364 | 12,886 | 78,865 | 11 | 111,077 |