

1988 WATERFOWL PRODUCTION SURVEY
TOGIK NATIONAL WILDLIFE REFUGE

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ABSTRACT

Seven areas of Togiak National Wildlife Refuge were surveyed in two rounds in a continuation of the waterfowl production study begun in 1984 to determine productivity trends and habitat utilization over an extended period of time. Fifteen square miles and 280 water bodies were surveyed with an average of 5.86 broods per square mile and 0.3 broods per water body. The low production rate is consistent with production rates observed in the past.

METHODS

Seven different study locations were selected in the area between the Nushagak Peninsula and West Coast Region plots of last year's survey. The locations were chosen for being probable waterfowl habitat and to give a broader overall picture of production habitat available within the refuge. Two square mile survey plots were chosen within each region with the exception of Kanik River which contained a single plot. The plots were selected based on proximity to water bodies large enough to accommodate float plane landings. Each water body was assigned an identification number with clusters of small water bodies being grouped together as a single unit.

Plots were surveyed using a modification of the beat-out method. Observers walked the perimeter of large water bodies as a team and surveyed small water bodies individually to facilitate covering of the plot. Broods were identified to species and aged to plumage class and subclass whenever possible. Hens exhibiting a distraction display when flushed were noted as being broody (*).

Two rounds of surveys were conducted to cover both the variability in hatching dates among waterfowl species and to record the older broods on open water. Round one ran from June 20 to July 10 and round two from July 26 to August 18.

RESULTS

Observations of thirteen square mile plots surveyed during round one between 20 June and 10 July are summarized in Table 1. The most abundant dabbling species observed was the green-winged teal (*Anas crecca*) followed by the mallard (*A. platyrhynchos*), northern pintail (*A. acuta*) and the northern shoveler (*A. clypeata*). Scaup (*Aythya* sp.) and oldsquaw (*Clangula hyemalis*) were the only species of diver and sea ducks observed, respectively. Other waterfowl species observed were the tundra swan (*Cygnus columbianus*), red-throated loon (*Gavia stellata*), arctic loon (*G. arctica*) and red-necked grebe (*Podiceps grisegena*).

Thirty-two broods were observed for an average of 2.46 broods per square mile. Of these, twenty-two were duck broods for an average of 1.69 duck broods per square mile.

Dabblers made up 56.25% of all waterfowl broods observed. The green-winged teal was the most abundant of the dabblers comprising 72.22 percent. Divers made up 3.13% of the total, sea ducks 9.37%, loons 21.87% and swans and grebes 9.37 percent. The unidentified brood observed during round one was considered to be a species of dabbler taking into account the time of the survey.

Fifteen square mile plots were surveyed during round two between 25 July and 18 August. Results are summarized in Table 2 and show an additional sea duck species present, Black Scoter (*Melanitta nigra*).

Fifty-six broods were observed for an average of 3.73 broods per square mile. Of these fifty-one were duck broods for an average of 3.40 duck broods per square mile.

Dabblers made up 66.07% of all waterfowl broods observed. Again the green-winged teal was the most abundant of these comprising 78.95 percent of the dabblers. Divers made up 19.82% of the total, sea ducks 5.35%, loons 5.35% and swans 3.57 percent. The unidentified nest observed during round two was considered to be a species of diver, taking into account the time of the survey and the fact that divers generally nest later in the season than dabblers.

The total results of this years' survey are summarized in Table 3. Eighty-eight broods were observed for an average of 5.86 broods per square mile. Of these seventy-three were duck broods for an average of 4.86 duck broods per square mile.

Dabblers made up 62.50% of all waterfowl broods observed of which 76.79% were green-winged teal. Divers made up 13.64% of the total, sea ducks 6.81%, loons 11.36% and swans 4.55 percent. Grebes, which are technically not waterfowl but were also observed, made up 1.13 percent.

The Kanik River plot contained the highest proportion (26.14%) of all waterfowl species observed with an astounding 23 broods per square mile (bpsm). This was followed by Chagvan Bay (21.6% and 9.5 bpsm), Kulukak River (18.18% and 8.0 bpsm), Tvativak Bay (15.91% and 7.0 bpsm), Osviak Slough (9.09% and 4.0 bpsm), Matogak River (7.95% and 2.33 bpsm) and Ualik Lake (1.14% and 0.5 bpsm).

Table 4 summarizes the brood surveys conducted from 1984 through 1988. In 1988, two hundred and eighty water bodies were surveyed for an average of 0.3 broods per water body. The average brood size of 5.0 was calculated from all complete broods observed.

DISCUSSION

At the conclusion of this years' study, a large portion of the most productive waterfowl habitat within the refuge has been surveyed. The average broods per waterbody for the past four years is 0.3 without any year appearing to be significantly different. This indicates that sufficient habitat is available for low production throughout the refuge.

The average brood size varies between years, however, it is dependent on the brood abundance of different species and thus is not necessarily a true indicator of productivity.

The data also indicate that certain areas are more productive than others. Preliminary observations suggest that there are significant habitat differences between some areas, however a more complete habitat analysis would have to be done for conclusive information.

With the exception of Ualik lake, the survey plots of the past two years have primarily been located in the lowland coastal regions believed to be productive habitat. Although no duck broods were observed in the Ualik Lake plots, in the future field crews conducting studies in the upland lake regions should survey plots near their stations in order to obtain a more accurate picture of waterfowl productivity throughout the refuge.

With the final establishment of specific study plots this year and the consistent low production over the past four years it does not appear to be economically valuable to repeat this study on an annual basis. We recommend conducting surveys of the established plots every five years to be reinstated on an annual basis at the outset of a significant change in waterfowl productivity.

LITERATURE CITED

Gallop and Marshall, "Development of a Wild Duckling" 1954.

1987 Waterfowl Production Report, Togiak National Wildlife Refuge files.

TABLE 1. ROUND ONE RESULTS. Total number of broods observed. Thirteen square miles and 245 water bodies surveyed.

WATERFOWL SPECIES	CHAGVAN	MATOGAK	OSVIK	TVATIVAK	KANIK	KULUKAK	UALIK	TOTAL BROODS
DABLERS								
GREEN-WINGED TEAL	4	0	1	4	3	1	0	13
MALLARD	0	0	0	2	0	0	0	2
NORTHERN PINTAIL	0	0	0	0	0	1	0	1
NORTHERN SHOVELER	0	0	0	0	0	1	0	1
UNIDENTIFIED	1	0	0	0	0	0	0	1
DIVERS								
SCAUP	1	0	0	0	0	0	0	1
SEA DUCKS								
OLDSQUAW	0	2	0	1	0	0	0	3
BLACK SCOTER	0	0	0	0	0	0	0	0
LOONS								
RED-THROATED LOON	1	0	1	3	1	0	0	6
ARCTIC LOON	0	0	0	0	0	1	0	1
OTHERS								
TUNDRA SWAN	0	1	1	0	0	0	0	2
RED-NECKED GREBE	0	0	0	0	1	0	0	1
TOTAL BROODS	7	3	3	10	5	4	0	32

TABLE 2. ROUND TWO RESULTS. Total number of broods observed. Fifteen square miles and 280 water bodies surveyed.

WATERFOWL SPECIES	CHAGVAN	HATOGAK	OSVIK	TVATIVAK	KANIK	KULUKAK	UALIK	TOTAL BROODS
DABBLERS								
GREEN-WINGED TEAL	4	1	4	0	12	9	0	30
MALLARD	0	0	0	2	1	0	0	3
NORTHERN PINTAIL	0	0	0	0	1	2	0	3
NORTHERN SHOVELER	0	0	0	0	0	1	0	1
DIVERS								
UNIDENTIFIED NEST	0	0	0	0	1	0	0	1
SCAUP	7	1	0	1	1	0	0	10
SEA DUCKS								
OLDSQUAW	1	0	0	0	0	0	0	1
BLACK SCOTER	0	1	1	0	0	0	0	2
LOONS								
RED-THROATED LOON	0	0	0	1	1	0	0	2
ARCTIC LOON	0	0	0	0	1	0	0	1
OTHERS								
TUNDRA SWAN	0	1	0	0	0	0	1	2
RED-NECKED GREBE	0	0	0	0	0	0	0	0
TOTAL BROODS	12	4	5	4	18	12	1	56

TABLE 3. SURVEY TOTALS. Total number of broods observed. Fifteen square miles and 280 water bodies surveyed.

WATERFOWL SPECIES	CHAGVAN	MATOGAK	OSVIK	TVATIVAK	KANIK	KULUKAK	UALIK	TOTAL BROODS
DABBLERS								
GREEN-WINGED TEAL	8	1	5	4	15	10	0	43
MALLARD	0	0	0	4	1	0	0	5
NORTHERN PINTAIL	0	0	0	0	1	3	0	4
NORTHERN SHOVELER	0	0	0	0	0	2	0	2
UNIDENTIFIED	1	0	0	0	0	0	0	1
DIVERS								
UNIDENTIFIED NEST	0	0	0	0	1	0	0	1
SCAUP	8	1	0	1	1	0	0	11
SEA DUCKS								
OLDSQUAW	1	2	0	1	0	0	0	4
BLACK SCOTER	0	1	1	0	0	0	0	2
LOONS								
RED-THROATED LOON	1	0	1	4	2	0	0	8
ARCTIC LOON	0	0	0	0	1	1	0	2
OTHERS								
TUNDRA SWAN	0	2	1	0	0	0	1	4
RED-NECKED GREBE	0	0	0	0	1	0	0	1
TOTAL BROODS	19	7	8	14	23	16	1	88

TABLE 4. BROOD OBSERVATION COMPARISONS 1984-1988.

YEAR	WATER BODIES SURVEYED	BROODS PER WATER BODY	AVG BROOD SIZE
1984*	118	0.8	5.3
1985	104	0.2	7.6
1986	145	0.3	4.8
1987	333	0.4	6.2
1988	280	0.3	5.0

*Observers remained in the same area for the season, monitoring the same waterbodies therefore data may not be comparable.

**1984 through 1987 figures taken from the 1987 Waterfowl Production final report