

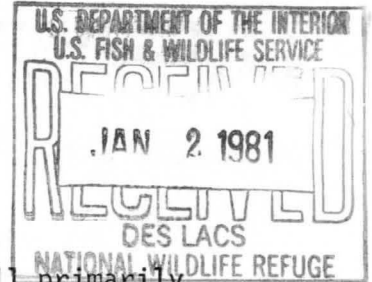
memorandum

DATE: **DEC 30 1980**

REPLY TO: Assistant Area Manager (R & W)
ATTN OF: Bismarck, North Dakota

SUBJECT: Waterfowl Disease Conference Report, November 18 & 19

TO: Refuges and Wetland Management Districts



A Waterfowl Disease Conference was held in Denver this fall primarily to develop a better program for dealing with waterfowl disease problems. Most of the report dealt with Avian cholera and problems in the Rainwater Basin.

Since the report is quite lengthy, we are attaching only the portions deemed to be of most interest to refuge managers in North Dakota.

Type 9 Submittal

Attachment

DES LACS COMPLEX		Action
To	Routing	
P.L.	JLU	
A.P.L.	RK	
D.L.	SAC	
LST.		
CRS.		
ILO.		
Clerk		
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Other		
File	Destroy	



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Migratory Waterfowl Disease Conference
Denver, Colorado
November 18 and 19, 1980

INTRODUCTION:

The limiting factor on most species of North American waterfowl is not known. In a few it may be hunter harvest. In most species, hunter harvest, under current regulations, is probably not the limiting factor. Non-hunting mortality apparently accounts for as much or more mortality than does hunting in most years. Much of the non-hunting mortality is nearer to the reproductive season than is the hunting mortality.

The definition of a limiting factor on a population for the purposes of this report is "that mortality factor which reduces a population to its lowest level between two consecutive reproductive cycles." A limiting factor can be discussed for a different period of time, of course, such as from the period of recruitment to the end of the hunting season or from the end of the hunting season to the next period of recruitment.

For the central flyway it may well be that the mortality factors relating to recruitment are the annual limiting factors for many species of waterfowl. If so, successful waterfowl management can be achieved only if these factors are addressed.

In the central flyway, diseases along with the effects of lead poisoning have become suspect as a limiting factor on some species of waterfowl. Botulism in summer and early autumn certainly appears to limit the number of certain groups of birds available for hunter harvest.

Waterfowl diseases in the states of North Dakota, South Dakota, Nebraska, Montana, Utah, and Texas have become serious in recent years. Avian cholera has caused heavy mortality in the Rainwater Basin of Nebraska in the Springs of 1975, 1976, 1977, and 1980, and struck particularly hard at the mid-continent population of whitefronted geese (Table 1). In addition to recruitment lost to direct mortality another reproductive increment may be lost to the effects of sublethal infections of cholera.

To look at it another way, the Fish and Wildlife Service is working hard and spending millions of dollars to maintain the breeding grounds of the pothole country. In recent years the direct mortality from botulism and cholera in the states of North Dakota, Montana, Nebraska, and Utah has probably equaled or exceeded the number of birds produced on all of the Service owned lands in South Dakota. In 1980 the direct mortality in the four states probably exceeded 200,000 birds, or enough for 40,000 to 50,000 good days of waterfowling.

It was with this background that the disease conference was held in the Region 6 office on November 18 and 19, 1980. There was a concerted effort to have representation from as wide a group as possible including research, management, and administration from state, federal and Canadian agencies (Table 2).

TABLE 1

AVIAN CHOLERA LOSSES - RAINWATER BASIN

<u>SPECIES</u>	<u>Percent by Species of Pickup</u>			
	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1980</u>
Whitefront	37	14	36	21
Canada	6	13	7	9
Snow	T	T	T	T
Mallard	21	44	26	30
Pintail	18	22	22	26
Baldpate	8	T	7	4
Green Winged Teal	5	T	1	T
Gadwall	3	T	T	T
Redhead	T	T	T	4
Coot	T	T	T	T
All other Species	2	3	1	3
Estimated total loss	25,000	15,000	10,000	76,000
Grand Total				126,000

T = Trace (less than 1%)

EXECUTIVE SUMMARY

1. Avian cholera and botulism have become important mortality factors on migratory waterfowl in the Central Flyway. One or both diseases may be a limiting factor on a population or a species and probably are the limiting factor on the numbers of some birds that are available for harvest in certain areas.
2. Waterfowl mortality due to diseases in North Dakota, Montana, Nebraska, and Utah probably equal the number raised on Service owned lands in South Dakota.
3. A disease conference was held in the Region 6 Fish and Wildlife Service Office on November 18 & 19, 1980, to explore the possibilities for disease research and short term management.
4. Representation at the meeting included private state and federal organizations and research, management, and administrative personnel.
5. Much of the Conference discussion centered on the cholera problem in the Rainwater Basin of Nebraska (the waist of the Central Flyway Hourglass).
6. Banded birds which died in the Rainwater Basin in the spring of 1980 had been banded in at least 20 widely separated locations.
7. There was no general consensus of how to manage for either cholera or botulism in Nebraska or elsewhere.
8. There were 38 research proposals put forth which would require an estimated 13,915 man-days and \$2,379,500 to execute. There was no consensus as to priority of the research.
9. Private conservation organizations have a strong interest in the waterfowl disease problem and believe they can accomplish some missions government agencies cannot.
10. An advisory board was selected to perpetuate the disease concern in the Central Flyway.

2. Develop a funding strategy beginning with a meeting of the Advisory Board members present at the 1981 spring meeting of the Central Flyway Technical Committee in Billings, Montana.

BOTULISM:

Dr. Milt Friend stood in for Dr. Wayne Jensen, internationally recognized authority on botulism. The following points were brought out in the discussion:

1. Dr. Jensen will publish much of his research during the first half of 1981.
2. Botulism, usually type C, kills more waterfowl in the Central Flyway than does avian cholera. Because it causes a high mortality among birds concentrated in a relatively small area it could well be a limiting factor on discreet flocks or subpopulations.
3. Botulism, as a waterfowl mortality factor, is an intoxication, not an infectuous disease.
4. It occurs in saline sites.
5. A bacteriophage is probably involved.
6. The toxin is produced only in an anaerobic situation.
7. A high concentration of organic matter is usually involved. This may be natural or it may be sewage or carcasses of birds killed otherwise.
8. The heavy mortality is usually associated with large expanses of shallow water over a newly flooded area or a drawn down area.
9. How the cycle starts is unknown.

10. Invertebrates, including maggots, appear to be implicated in botulism outbreaks.
11. A pickup of dead and dying birds is considered vital to control an outbreak.
12. Affected birds can often be saved by giving them fresh water or an injection of antitoxin, or both.
13. There is a worldwide shortage of type C antitoxin.
14. The antitoxin is used for diagnosis of botulism as well as treatment.
15. The toxin is stable in the environment.

A short brainstorming session was held relating to Botulism. The following list of ideas and comments was developed:

1. Aereate areas where botulism occurs and attempt to maintain an aerobic situation.
2. Find a breakdown process for the toxin.
3. Disl. in quicklime to control invertebrates and bacteria on mud flats.
4. Treat mud flats with organic phosphates to control flies and invertebrates.
5. Irradiate flies or other invertebrates to control populations similar to the methods used in screw worm control.

No new management techniques were proposed.

Research proposals:

Only one research proposal was received (Table 6).

TABLE 6

Titles of Research Proposals
Relating to Botulism 11/19/80 1/

Proposal
Number

Title

19

Preparation of Botulism Antitoxin.

RECOMMENDATIONS RELATING TO BOTULISM:

1. Maintain good surveillance of endemic botulism areas and maintain good sanitation if an outbreak occurs.
2. Hold most research and research proposals in abeyance until Dr. Jensen's work is published in the summer of 1981.