



NATIONAL FLYWAY COUNCIL

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Implementation Plan for Avian Influenza Surveillance in Waterfowl in the United States

Summer FY 2021 – Winter FY 2022



Version 1.0p March 2021

FY 2022 Implementation Plan

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Introduction

This document describes a plan to implement national level surveillance for avian influenza viruses (AIVs) in wild waterfowl. Collaborating entities include the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Wildlife Services (WS) National Wildlife Disease Program (NWDP) and Veterinary Services (VS); the United States Geological Survey (USGS); U.S. Fish and Wildlife Service (USFWS); and the National Flyway Council. The Implementation Plan supports the collection of biological samples, diagnostic testing, data management, and analysis of data obtained by USDA-APHIS-Wildlife Services (WS), other Federal agencies, State wildlife agencies, Universities, and tribal cooperators.

HPAI Surveillance Goals

The goals of this surveillance effort are to maximize our ability to detect AIVs in wild waterfowl so that we can identify the distribution of AIVs in the U.S., detect spread to new areas of concern, to provide a flexible surveillance framework to monitor wild dabbling duck populations for introduction of new viruses, and to estimate prevalence of AIVs once detected.

The plan focuses on sample collection at the watershed level (sub-regional watersheds) and specific watersheds have been identified for sample collection. This selection is based on areas that have high mixing of wild bird populations (sometimes from multiple flyways) and previous evidence of influenza infections in wild birds. Sample numbers are based on dabbling duck population estimates from bird band and recovery data and the estimated annual continental dabbling duck population available from the U.S. Fish and Wildlife Service. If the targeted numbers of samples are collected from dabbling ducks within each specified watershed, we will be able to determine with 95% certainty whether the AIV's of interest are present at the time of the surveillance.

Implementation Plan

1. SPECIES AND SAMPLE NUMBERS

- a. **The target numbers of samples are listed in Appendix 1 and apply only to dabbling ducks. This plan does not address any other bird groups.**
- b. Target species (dabbling ducks) (Table 1). The Fulvous Whistling duck is not taxonomically a dabbling duck but because of its foraging habits it is included in the same functional group for purposes of this surveillance plan.

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Target Species by Functional Group

Table 1. Target Species by Functional Group

Dabbling Ducks	
American Green-winged Teal	Mallard
Northern Pintail	American Black Duck
Wood Duck	Blue-winged Teal
Cinnamon Teal	Northern Shoveler
Gadwall	American Wigeon
Mottled Duck	Muscovy Duck
Fulvous Whistling Duck	

- c. Captive-reared and released ducks that are subsequently live-captured or hunter harvested may be swabbed like any other dabbling duck and will be counted in the watershed target numbers.

2. WHAT TO COLLECT

- a. The target sample numbers in this manual represent samples collected from agency harvested birds, hunter harvested birds, and live wild birds.
- b. One cloacal and one oropharyngeal swab will be collected from each wild bird sampled. Cloacal and oropharyngeal swabs will be combined in the same tube of media.

3. WHEN TO COLLECT

- a. Sample collection will occur from May 2021 through February 2022.

4. WHERE TO COLLECT

- a. A U.S. map of Hydrologic Unit Code 4 (HUC4) watersheds is shown in Figure 1. Full page maps of watersheds in each state are available upon request. There is flexibility in watersheds and seasonal targets.

5. SAMPLE SUBMISSION

- a. All samples will be submitted to one of several pre-approved National Animal Health Laboratory Network (NAHLN) laboratories. Each state is assigned to a specific laboratory to use for diagnostics. Samples will be screened to determine if type A influenza virus is present; if the test is positive, the sample will be further analyzed using H5 and H7 specific assays. All samples testing matrix positive (including any H5 or H7 positives) at a NAHLN laboratory will be sent to NVSL for virus isolation and sequencing/subtyping if possible.

6. PERMITS

- a. The NWDP has a “blanket” scientific collecting permit from USFWS that includes all states except Hawaii, for the swabbing of most species collected as live birds or hunter harvest, by Wildlife Services personnel. Agency harvest for the sole purpose of disease sampling is not permitted. The permit is posted on the NWDP intranet. (Access is restricted to WS personnel.) Wildlife Services personnel must have a copy in the field whenever they are sampling. State agency cooperators and banders will need their own permits from USFWS

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and the Bird Banding Laboratory for live-capture activities, as usual.

7. COORDINATION BETWEEN STATE AGENCIES, TRIBAL AGENCIES, AND USFWS

- a. Sample collection can include efforts by federal, state, tribal, local, university, and non-governmental participants as needed.

8. REPORTING FIELD DATA

- a. Each biologist is responsible for entering field data directly into the APHIS Veterinary Services Laboratory Submission System website (VSL) (<http://vsapps.aphis.usda.gov/vslabsub/login.do>) **within 24 hours** of submitting samples to the laboratory.

Morbidity and Mortality Surveillance:

Morbidity/mortality events should be investigated regardless of the time of year, species involved, or the number of samples already collected in the state. Morbidity/mortality samples do not count towards meeting the watershed targets and are not entered into the VSL database.

Morbidity/Mortality events have a different disease risk associated with them and the data cannot be analyzed in the same way as apparently healthy birds (live-capture and hunter harvest).

The USGS National Wildlife Health Center (NWHC) in Madison, WI is our primary partner for performing diagnostics related to mortality events and can provide guidance on the investigation, sampling, and diagnostics for observed avian mortality. Briefly, the NWHC guidance for specimen collection from mortality is to collect and submit whole carcasses. **Do not collect swabs from carcasses submitted to the NWHC. Always contact the NWHC for guidance. Sample types submitted will be determined on a case-by-case basis.** Please note that the NWHC has updated submission criteria as part of the US HPAI Wild Bird Surveillance Strategy. Details on mortality submission (species, criteria for submission, number of carcasses to collect, sample handling, lab submission form, shipping, and contact for the NWHC) are included in the Wildlife Services HPAI Surveillance Procedure Manual. The NWHC should be contacted prior to shipping any carcass. Contact at 608-270-2480, NWHC-epi@usgs.gov.

State veterinary diagnostic laboratories, or regional labs such as SCWDS, may also be used in morbidity/mortality investigations. Contact your local lab for sample submission instructions.

PLEASE NOTIFY YOUR STATE WILDLIFE SERVICES OFFICE AND THE NWDP IF YOU ARE SENDING MORTALITY SAMPLES TO A STATE LABORATORY OR SCWDS. Please follow lab specific instructions for submitting samples. Do not swab carcasses you are submitting.

Other Surveillance Strategies

Other strategies such as environmental (fecal) sampling and sentinels are useful in specific situations but are not part of this surveillance plan.

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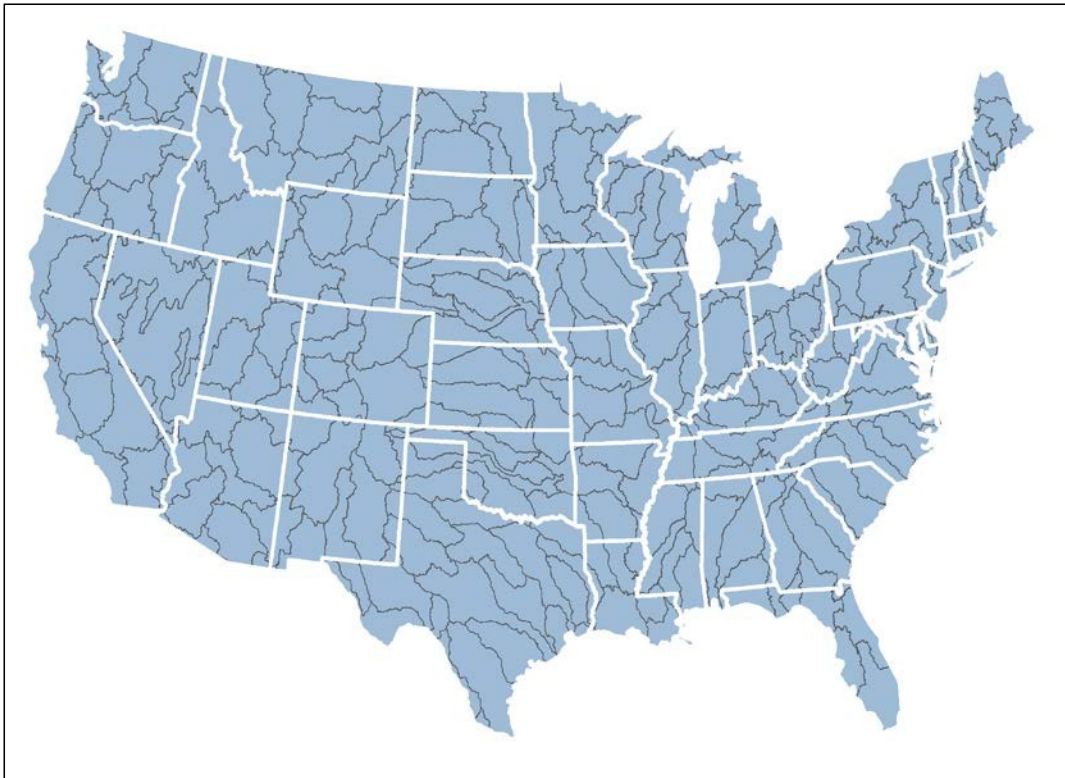


Figure 1. Sub-region watershed (hydrologic unit code 4) map of the continental United States. Watershed boundaries are in gray, state boundaries are in white.

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**APPENDIX 1. Number of Wild Bird Samples to be Collected
per State in the Atlantic and Pacific Flyways**

State	Watershed Name	Summer (May- August)	Fall (August- December)	Winter (December- February)	Total Sample Size by Watershed
AK	Southeast Alaska	0	180	0	180
AK	South Central Alaska	210	220	0	430
AK	Southwest Alaska	110	0	0	110
AK	Yukon Alaska	120	0	0	120
AZ	Lower Colorado	0	140	0	140
CA	Klamath-Northern California Coastal	100	170	120	390
CA	Sacramento	40	120	270	430
CA	Tulare-Buena Vista Lakes	0	270	110	380
CA	San Joaquin	0	110	210	320
CA	San Francisco Bay	0	130	180	310
CA	Southern Mojave-Salton Sea	0	0	290	290
CT	Connecticut Coastal	0	80	300	380
DE	Delaware-Mid Atlantic Coastal	120	80	120	320
FL	St. Johns	0	80	180	260
FL	Southern Florida	0	70	300	370
GA	Ogeechee-Savannah	0	30	125	155
GA	Altamaha-St. Mary's	0	70	280	350
GA	Apalachicola	0	120	300	420
ID	Middle Snake	30	170	160	360
ID	Upper Snake	60	230	0	290
MA	Connecticut	95	25	150	270
MD	Upper Chesapeake	260	60	140	460
ME	Penobscot	300	200	0	500
ME	St. John	0	300	0	300
MT	Missouri-Marias	40	110	0	150
MT	Kootenai-Pend Oreille-Spokane	0	170	0	170
NC	Chowan-Roanoke	170	70	300	540
NC	Neuse-Pamlico	0	120	250	370
NC	Cape Fear	0	70	200	270
NH	Merrimack	190	50	0	240
NH	Connecticut	95	25	150	270
NJ	Delaware-Mid Atlantic Coastal	100	40	85	225
NV	Central Lahontan	60	140	170	370
NY	Southeastern Lake Ontario	280	80	300	660
NY	Lake Erie	0	130	100	230

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OR	Middle Columbia	0	160	110	270
OR	Lower Columbia	85	90	105	280
OR	Willamette	0	200	90	290
OR	Oregon Closed Basins	0	210	100	310
PA	Susquehanna	0	110	300	410
SC	Edisto-Santee	0	90	190	280
SC	Ogeechee-Savannah	0	30	125	155
UT	Bear	0	160	0	160
UT	Great Salt Lake	250	300	0	550
UT	Escalante Desert-Sevier Lake	0	0	200	200
VA	Lower Chesapeake	0	25	150	175
VA	Upper Tennessee	80	0	0	80
VA	Chowan-Roanoke	0	25	150	175
VT	Northeastern Lake Ontario-Lake Ontario-St. Lawrence	250	100	0	350
WA	Yakima	70	200	0	270
WA	Lower Columbia	85	90	105	280
WA	Puget Sound	50	170	100	320
WV	Monongahela	300	70	230	600
WV	Upper Ohio	130	110	0	240