NATIONAL FLYWAY COUNCIL

Pacific est. 1952 - **Central** est. 1948 - **Mississippi** est. 1952 - **Atlantic** est. 1952

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



Summer 2026 – Spring 2027

22 May 2026

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INTRODUCTION

This document describes the 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 U.S. Department of the Interior (DOI) U.S. Geological Survey (USGS) and 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 and identify the distribution of AIVs in wild waterfowl in the U.S.
- Establish a national system for the early detection of AIVs of concern
- Detect spread of AIVs to new areas and identify areas of risk
- Obtain and analyze genetic data to understand transmission dynamics and identify viral changes
- Help the poultry industry and other stakeholders understand and take steps to minimize transmission risk

The plan focuses on sample collection at the watershed level (HUC4 sub-regional watersheds), and specific watersheds have been selected for sample collection. Watersheds were selected based on areas that have a high mixing of wild bird populations (sometimes from multiple flyways) and previous evidence of influenza infections in wild birds. Sample numbers were based on waterfowl population estimates and highly pathogenic avian influenza (HPAI) true prevalence estimates. If targeted sample numbers are reached within each specified watershed, we can determine with 95% confidence whether the AIVs of interest are present at the time of the surveillance.

IMPLEMENTATION PLAN

1. SAMPLE NUMBERS AND SPECIES

a. **The sample target numbers are listed in Appendix 1 and apply only to apparently healthy dabbling and diving ducks**. **This plan does not address any other bird groups or morbidity/mortality samples.**

b. The models used to identify priority watersheds and generate target numbers are adaptive and updated annually to incorporate surveillance data from the previous year. Watersheds and target numbers are expected to change each year as duck populations, AIV detections, and other spatial and temporal variables change.

c. Opportunistic sampling will occur in Hawaii, Puerto Rico, U.S. Virgin Islands, and select watersheds across the U.S. No target numbers have been assigned to these areas. Samples from Hawaii, Puerto Rico, the U.S. Virgin Islands, and northern Alaska may also include wild bird species other than dabbling/diving ducks.

d. A list of target species can be found in 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.

e. 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.

Table 1. Target Species for Wild Bird AIV Surveillance

Dabbling Ducks	
American Black Duck	Mallard
American Wigeon	Mottled Duck
Blue-winged Teal	Muscovy Duck
Cinnamon Teal	Northern Pintail
Fulvous Whistling Duck	Northern Shoveler
Gadwall	Wood Duck
Green-winged Teal	
Diving Ducks	
Bufflehead	Lesser Scaup
Barrow's Goldeneye	Long-tailed Duck
Black Scoter	Red-breasted Merganser
Canvasback	Redhead
Common Eider	Ring-necked Duck
Common Goldeneye	Ruddy Duck
Common Merganser	Spectacled Eider
Common Pochards	Steller's Eider
Greater Scaup	Surf Scoter
Harlequin Duck	Tufted Duck
Hooded Merganser	White-winged Scoter
King Eider	

3. WHEN TO COLLECT

a. Sample collection will occur from May 2026 through April 2027.
b. There are four seasons in a sampling year: Summer (May – August), Fall (September – November), Winter (December – February), and Spring (March – April). Appendix 1 lists the target sample numbers for each season. Generally, these seasons are intended to correspond with different stages of a bird's annual cycle: Summer = breeding season, Fall = fall migration, Winter = birds on their wintering grounds, and Spring = spring migration. Because birds may experience these stages at different times depending on the collection site, bird migratory patterns, and climate, there is some flexibility in season cutoff dates if needed. **Contact the NWDP if you have questions about season cutoff dates for your area.**

c. **Sample collections should be limited to 60 samples per site per week.** Exceptions to this limit must be approved by the NWDP before samples are shipped to a lab for testing. Distributing sample collections over time provides a more accurate estimate of AIV activity on the landscape.

4. WHERE TO COLLECT

A U.S. map of Hydrologic Unit Code 4 (HUC4) watersheds is shown in Figure 1, and maps of target watershed for each season are shown in Appendix 2. Full page maps of watersheds in each state are available upon request. There is flexibility in watersheds and seasonal targets when on-the-ground conditions deviate from what was anticipated (e.g., no capture opportunities in a watershed due to drought). **Please contact the NWDP if you know that changes need to be made to watershed or seasonal targets.**

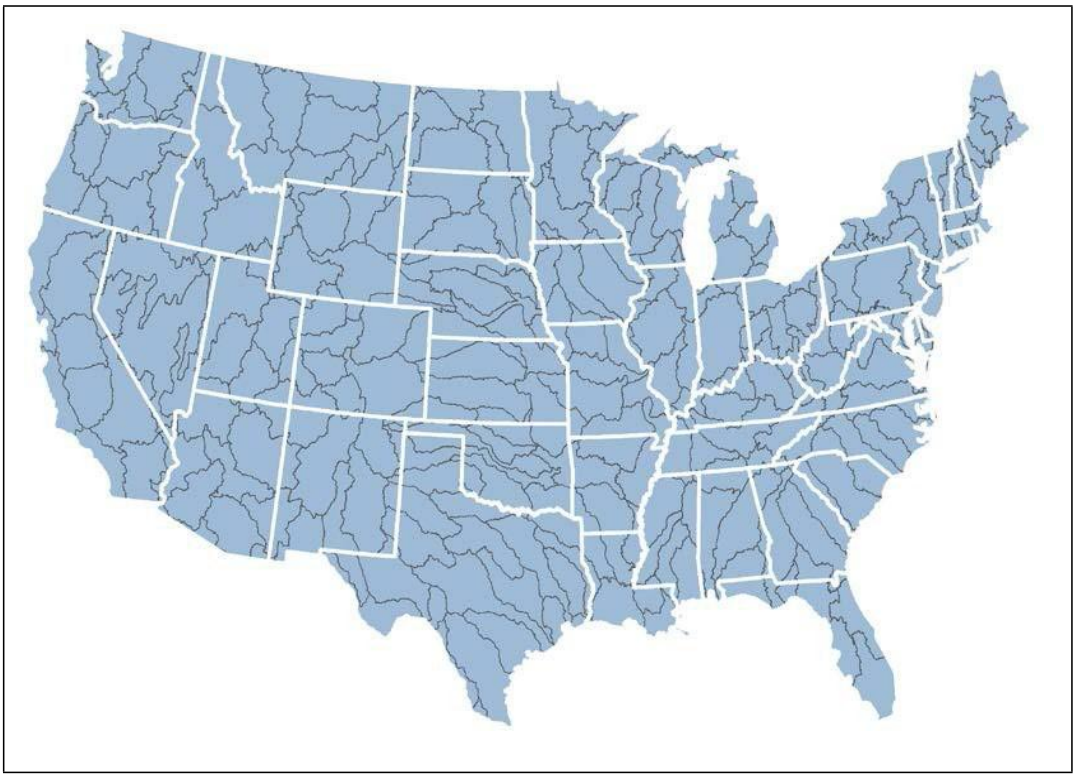


Figure 1. Sub-region watershed (hydrologic unit code 4) map of the continental United States. Watershed boundaries are in gray; state boundaries are in white.

5. SAMPLE SUBMISSION

All samples will be submitted to one of the pre-approved National Animal Health Laboratory Network (NAHLN) laboratories. Appendix 3 lists the names and contact phone numbers of participating laboratories. The NWDP has established Blanket Purchase Agreements (BPA's) with each lab. Each state is assigned to a specific laboratory to use for diagnostics. **Samples shipped to non-contracted labs will not be covered by the NWDP and will be the responsibility of submitting states.** The labs will screen samples to determine if type A influenza virus is present; if the test is positive, the labs will further analyze the sample using H5- and H7-specific assays. The labs will send all samples testing positive for any AIV (including samples testing positive for H5 or H7) to NVSL for sequencing/subtyping.

6. PERMITS

The NWDP has a "blanket" scientific collecting permit from USFWS that includes all States except Hawaii. Wildlife Services personnel must have a copy of this permit in the field when sampling. The permit covers 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 only permitted during emergency zoonotic disease outbreaks. Unless directed by the NWDP Emergency Response staff, do not lethally take birds for the sole purpose of disease sampling.** State agency cooperators and banders will need their own permits from USFWS and the USGS Bird Banding Laboratory for live-capture activities, as usual. If HPAI swabbing of live birds is to be conducted as a 'piggyback' activity, the banding permit must be amended to allow this activity.

The NWDP will complete and submit the annual reporting requirements outlined in the permit for all states collecting wild bird samples. To avoid submitting duplicate copies of reports, State WS offices should not submit their own copies of the annual report to USFWS. For a copy of the USFWS permit, see the document "Wild Bird Avian Influenza Surveillance – Field Procedures Manual" or contact the NWDP.

7. COORDINATION WITH OTHER AGENCIES

Sample collection can include efforts by federal, state, Tribal, local, university, and non-governmental participants as needed. Samples intended to count toward watershed target numbers must be entered into the APHIS Veterinary Services Laboratory Submission System (VSLS—see below), regardless of which agency collects the samples.

8. REPORTING FIELD DATA

Each biologist is responsible for entering field data directly into the APHIS Veterinary Services Laboratory Submission System application (VSLS) (http://vsapps.aphis.usda.gov/vslabsub/login.do) **within 24 hours** of submitting samples to the laboratory. Each biologist is also responsible for emailing electronic copies of data forms to NWDPData@usda.gov **within 24 hours** of submitting samples to the laboratory. Results may be requested only after field data is entered into the system and results have been received from the diagnostic lab. For new user accounts, please refer to the directions in the document "Wild Bird Avian Influenza Surveillance – Field Procedures Manual."

MORBIDITY AND MORTALITY SURVEILLANCE

Agencies should investigate wild bird morbidity/mortality events regardless of the time of year, species involved, or the number of samples already collected in the state. **Morbidity/mortality samples do not count toward the watershed targets, as morbidity/mortality events have a different disease risk associated with them, and the data are analyzed differently than those of 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 morbidity/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 prior to submitting samples. Sample types submitted will be determined on a case-by-case basis.** The

NWHC should be contacted by phone (608-270-2480) or email (NWHC-epi@usgs. gov) prior to shipping any carcass. If NWHC declines to test samples from a morbidity/mortality event and you are still interested in getting results, contact the NWDP.

State or regional veterinary diagnostic laboratories 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 OR REGIONAL LABORATORY. If a lab requests multiple sample types (e.g., 3 carcasses and swabs from all other birds involved in the morbidity/mortality event), keep all samples from the same event together and submit them to only one lab.**

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.

APPENDIX 1. Number of Wild Bird Samples to be Collected by State, 2026-2027 Surveillance Year

Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
Alabama					
Alabama	0	*Opportunistic*	0	0	**-**
Apalachicola	0	*Opportunistic*	0	0	**-**
Middle Tennessee-Elk	0	*Opportunistic*	300	0	**300**
Alaska					
Arctic Alaska	*Opportunistic*	0	0	0	**-**
Lower Yukon River	330	0	0	0	**330**
Middle Yukon River	330	300	*Opportunistic*	*Opportunistic*	**630**
South Central Alaska	*Opportunistic*	320	325	0	**645**
Southeast Alaska	0	260	0	0	**260**
Arizona					
Lower Colorado	0	*Opportunistic*	305	0	**305**
Arkansas					
Lower Arkansas	0	0	330	0	**330**
Lower Mississippi-St. Francis	0	0	240	0	**240**
California					
Klamath-Northern California Coastal	330	0	0	0	**330**
Sacramento	0	325	325	0	**650**
San Francisco Bay	*Opportunistic*	0	330	0	**330**
San Joaquin	0	*Opportunistic*	*Opportunistic*	0	**-**
Southern California Coastal	0	270	0	0	**270**
Tulare-Buena Vista Lakes	0	0	330	0	**330**
Colorado					
North Platte	0	150	0	0	**150**
Rio Grande Headwaters	0	320	0	0	**320**
South Platte	*Opportunistic*	0	310	*Opportunistic*	**310**
Upper Arkansas	0	0	0	*Opportunistic*	**-**

Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
Connecticut					
Connecticut Coastal	*Opportunistic*	0	275	150	**425**
Delaware					
Delaware-Mid Atlantic Coastal	0	60	60	0	**120**
Florida					
Southern Florida	0	*Opportunistic*	310	0	**310**
St. Johns	0	*Opportunistic*	270	0	**270**
Georgia					
Altamaha-St. Marys	0	245	0	0	**245**
Apalachicola	0	0	265	0	**265**
Hawaii					
Oahu	*Opportunistic*	*Opportunistic*	*Opportunistic*	*Opportunistic*	**-**
Idaho					
Kootenai-Pend Oreille-Spokane	0	165	0	0	**165**
Middle Snake	0	0	310	0	**310**
Upper Snake	*Opportunistic*	315	0	0	**315**
Illinois					
Lower Illinois	0	325	0	0	**325**
Upper Illinois	0	*Opportunistic*	*Opportunistic*	0	**-**
Upper Mississippi-Kaskaskia-Meramec	0	320	0	*Opportunistic*	**320**
Indiana					
Southeastern Lake Michigan	100	0	0	0	**100**
Upper Illinois	0	325	*Opportunistic*	*Opportunistic*	**325**
Wabash	0	310	*Opportunistic*	0	**310**
Iowa					
Des Moines	0	315	0	0	**315**
Missouri-Little Sioux	0	*Opportunistic*	0	*Opportunistic*	**-**
Upper Mississippi-Iowa-Skunk-Waps	0	290	0	0	**290**
Upper Mississippi-Maquoketa-Plum	0	305	0	0	**305**

Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
Kansas					
Kansas	0	160	0	0	**160**
Middle Arkansas	0	320	325	*Opportunistic*	**645**
Neosho-Verdigris	0	*Opportunistic*	160	0	**160**
Kentucky					
Lower Ohio	0	0	300	0	**300**
Louisiana					
Boeuf-Tensas	0	*Opportunistic*	335	0	**335**
Louisiana Coastal	0	0	335	0	**335**
Maine					
Kennebec	0	290	285	0	**575**
Maine Coastal	0	0	270	0	**270**
Penobscot	0	0	225	0	**225**
Saco	0	90	0	0	**90**
Maryland					
Lower Chesapeake	0	135	135	0	**270**
Massachusetts					
Connecticut	0	0	100	0	**100**
Merrimack	0	70	70	0	**140**
Michigan					
Southeastern Lake Michigan	210	0	320	0	**530**
Southwestern Lake Huron-Lake Huron	0	270	0	0	**270**
St. Clair-Detroit	320	325	0	0	**645**
Minnesota					
Minnesota	300	325	0	0	**625**
Red	220	0	0	0	**220**
St. Croix	0	140	0	0	**140**
Upper Mississippi-Black-Root	0	155	0	0	**155**
Mississippi					
Lower Mississippi-Yazoo	0	320	315	0	**635**

Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
Missouri					
Upper Mississippi-Salt	0	*Opportunistic*	0	0	**-**
Lower Mississippi-St. Francis	0	*Opportunistic*	80	0	**80**
Lower Missouri	0	325	330	0	**655**
Montana					
Big Horn	0	310	0	0	**310**
Kootenai-Pend Oreille-Spokane	0	80	0	0	**80**
Missouri Headwaters	*Opportunistic*	0	0	0	**-**
Missouri-Marias	0	330	0	0	**330**
Upper Yellowstone	0	*Opportunistic*	0	0	**-**
Nebraska					
Kansas	0	160	0	0	**160**
Loup	0	*Opportunistic*	0	0	**-**
North Platte	0	60	0	0	**60**
Republican	0	*Opportunistic*	0	0	**-**
Nevada					
Central Lahontan	*Opportunistic*	315	305	0	**620**
Lower Colorado-Lake Mead	0	0	*Opportunistic*	0	**-**
New Hampshire					
Connecticut	0	0	135	0	**135**
Merrimack	0	220	220	0	**440**
Saco	0	200	0	0	**200**
New Jersey					
Delaware-Mid Atlantic Coastal	130	120	120	*Opportunistic*	**370**
Lower Hudson-Long Island	0	0	0	*Opportunistic*	**-**
New Mexico					
Rio Grande-Elephant Butte	0	0	320	0	**320**
Upper Pecos	0	320	0	0	**320**
New York					
Southeastern Lake Ontario	0	0	320	0	**320**
Southwestern Lake Ontario	0	245	0	0	**245**

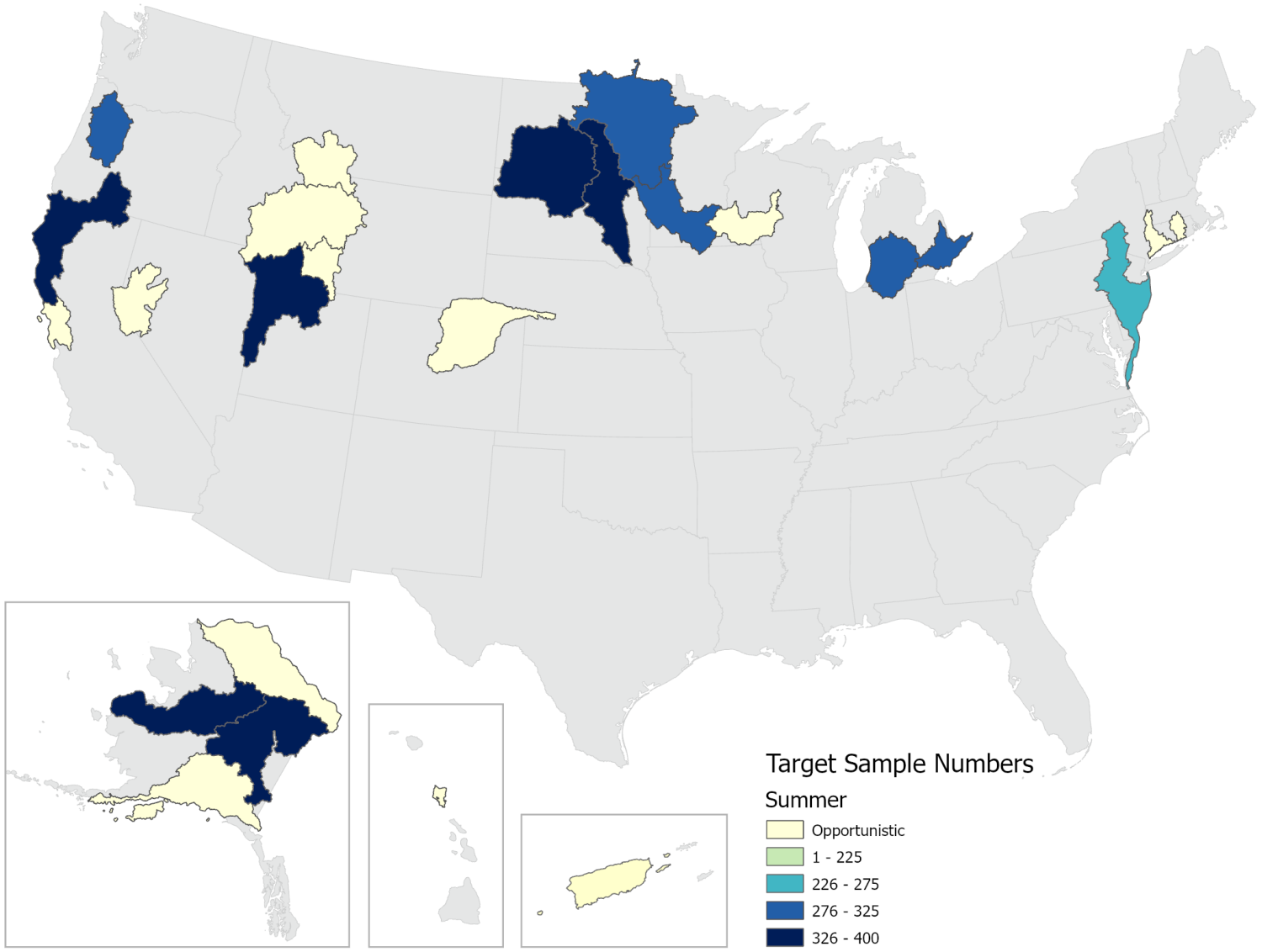
Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
North Carolina					
Cape Fear	0	0	*Opportunistic*	0	**-**
Chowan-Roanoke	0	*Opportunistic*	150	0	**150**
Neuse-Pamlico	0	305	315	0	**620**
North Dakota					
James	0	100	0	0	**100**
Missouri-Little Missouri	0	*Opportunistic*	0	0	**-**
Missouri-Oahe	330	330	0	0	**660**
Red	85	*Opportunistic*	0	0	**85**
Souris	0	*Opportunistic*	0	0	**-**
Ohio					
Scioto	0	0	325	0	**325**
Upper Ohio	0	65	0	0	**65**
Western Lake Erie	0	255	0	*Opportunistic*	**255**
Oklahoma					
Neosho-Verdigris	0	*Opportunistic*	155	0	**155**
Red Headwaters	0	*Opportunistic*	0	0	**-**
Red-Washita	0	*Opportunistic*	0	0	**-**
Oregon					
Middle Columbia	0	0	230	0	**230**
Oregon Closed Basins	0	330	0	0	**330**
Willamette	310	320	330	*Opportunistic*	**960**
Pennsylvania					
Delaware-Mid Atlantic Coastal	115	80	100	0	**295**
Susquehanna	0	220	265	0	**485**
Upper Ohio	0	100	0	0	**100**
Puerto Rico					
Puerto Rico	*Opportunistic*	*Opportunistic*	*Opportunistic*	*Opportunistic*	**-**
Rhode Island					
Massachusetts-Rhode Island Coastal	0	270	275	100	**645**
South Carolina					
Edisto-Santee	0	*Opportunistic*	305	0	**305**

Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
South Dakota					
James	335	235	0	0	**570**
Missouri-Big Sioux	0	*Opportunistic*	0	0	**-**
Tennessee					
Lower Mississippi-Hatchie	0	0	260	0	**260**
Texas					
Brazos Headwaters	0	150	0	0	**150**
Central Texas Coastal	0	0	300	0	**300**
Neches	0	270	285	0	**555**
Red Headwaters	0	*Opportunistic*	0	0	**-**
Red-Washita	0	*Opportunistic*	0	0	**-**
Trinity	0	320	0	0	**320**
U.S. Virgin Islands					
Virgin Islands	*Opportunistic*	*Opportunistic*	*Opportunistic*	*Opportunistic*	**-**
Utah					
Bear	*Opportunistic*	320	0	0	**320**
Great Salt Lake	330	330	0	0	**660**
Vermont					
NE Lake Ontario-Lake Ontario- St. Lawrence	0	120	0	0	**120**
Virginia					
Chowan-Roanoke	0	0	145	0	**145**
Lower Chesapeake	0	135	130	0	**265**
Potomac	0	160	0	0	**160**
Washington					
Lower Columbia	0	160	165	0	**325**
Middle Columbia	0	0	100	0	**100**
Puget Sound	0	125	150	130	**405**
Upper Columbia	0	230	275	0	**505**
West Virginia					
Potomac	0	100	0	0	**100**
Upper Ohio	0	100	0	0	**100**

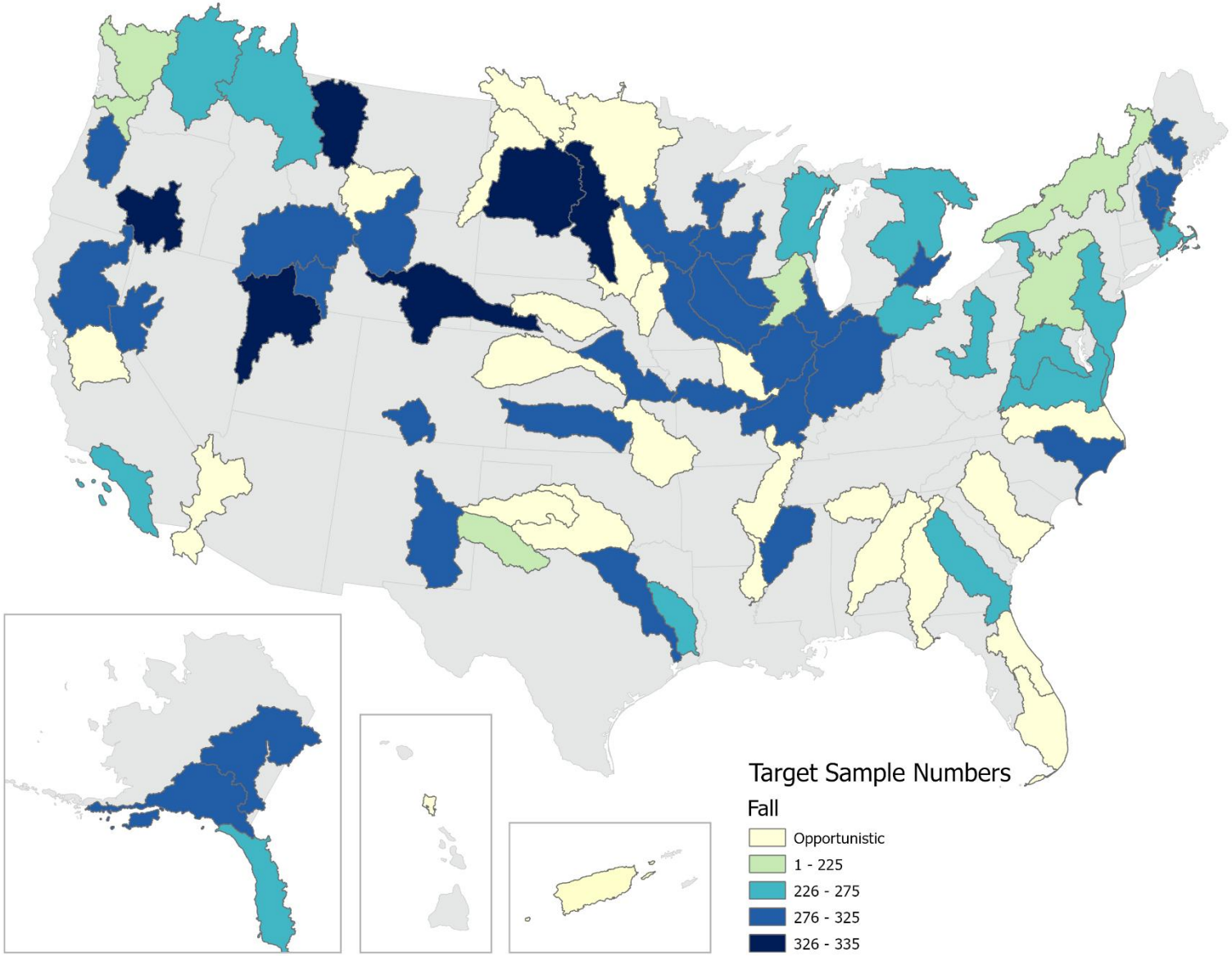
Watershed by State	Target Numbers				
	Summer (May - Aug)	**Fall** (Sep - Nov)	**Winter** (Dec - Feb)	**Spring** (Mar - Apr)	**Grand Total**
Wisconsin					
Northwestern Lake Michigan	0	275	0	0	**275**
Rock	0	120	0	0	**120**
St. Croix	0	145	0	0	**145**
Upper Mississippi-Black-Root	*Opportunistic*	150	0	0	**150**
Wyoming					
North Platte	0	120	0	0	**120**
Grand Total	**3,775**	**16,145**	**13,550**	**380**	**33,850**

APPENDIX 2. Maps of Target Watersheds by Season

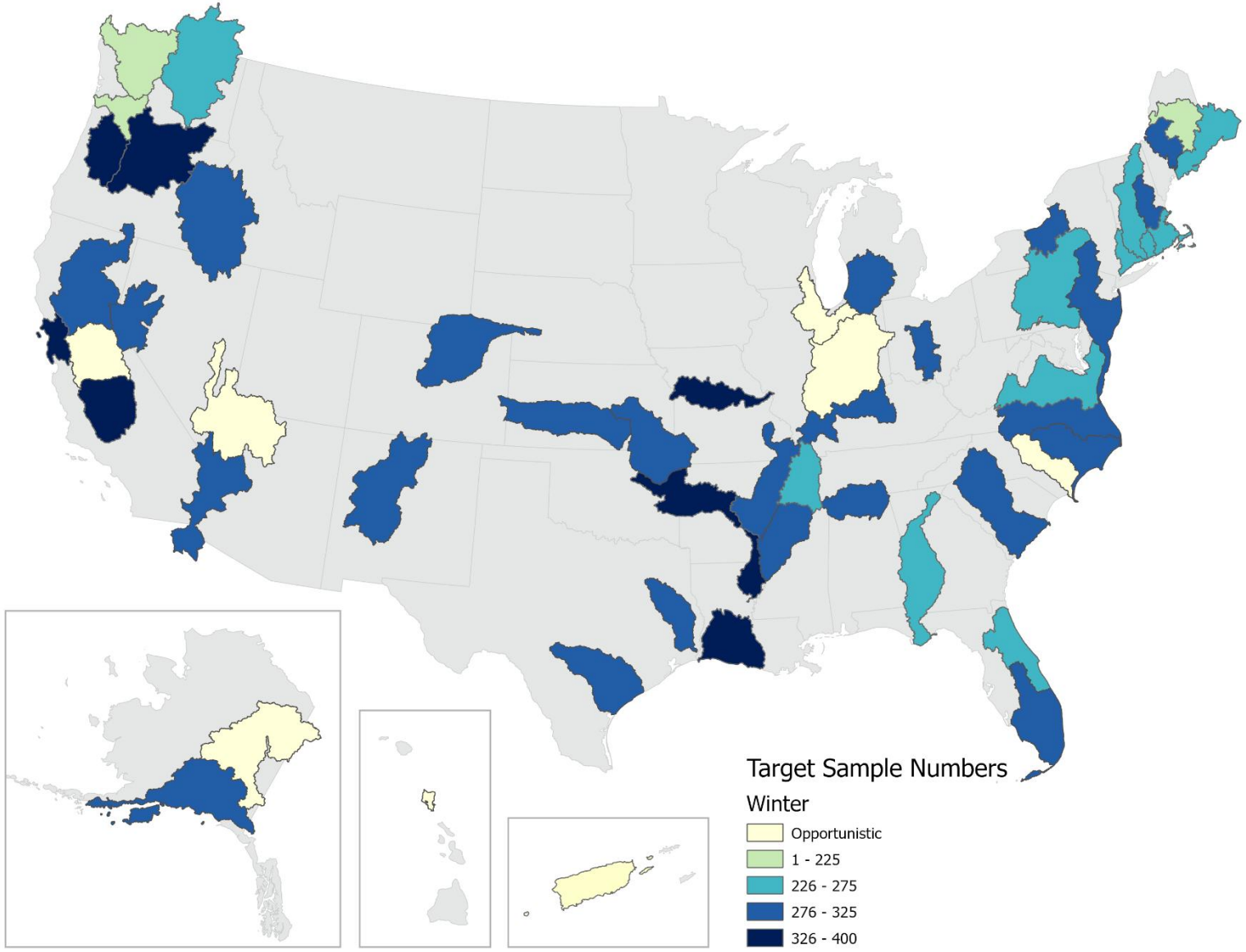
Summer (May – August):



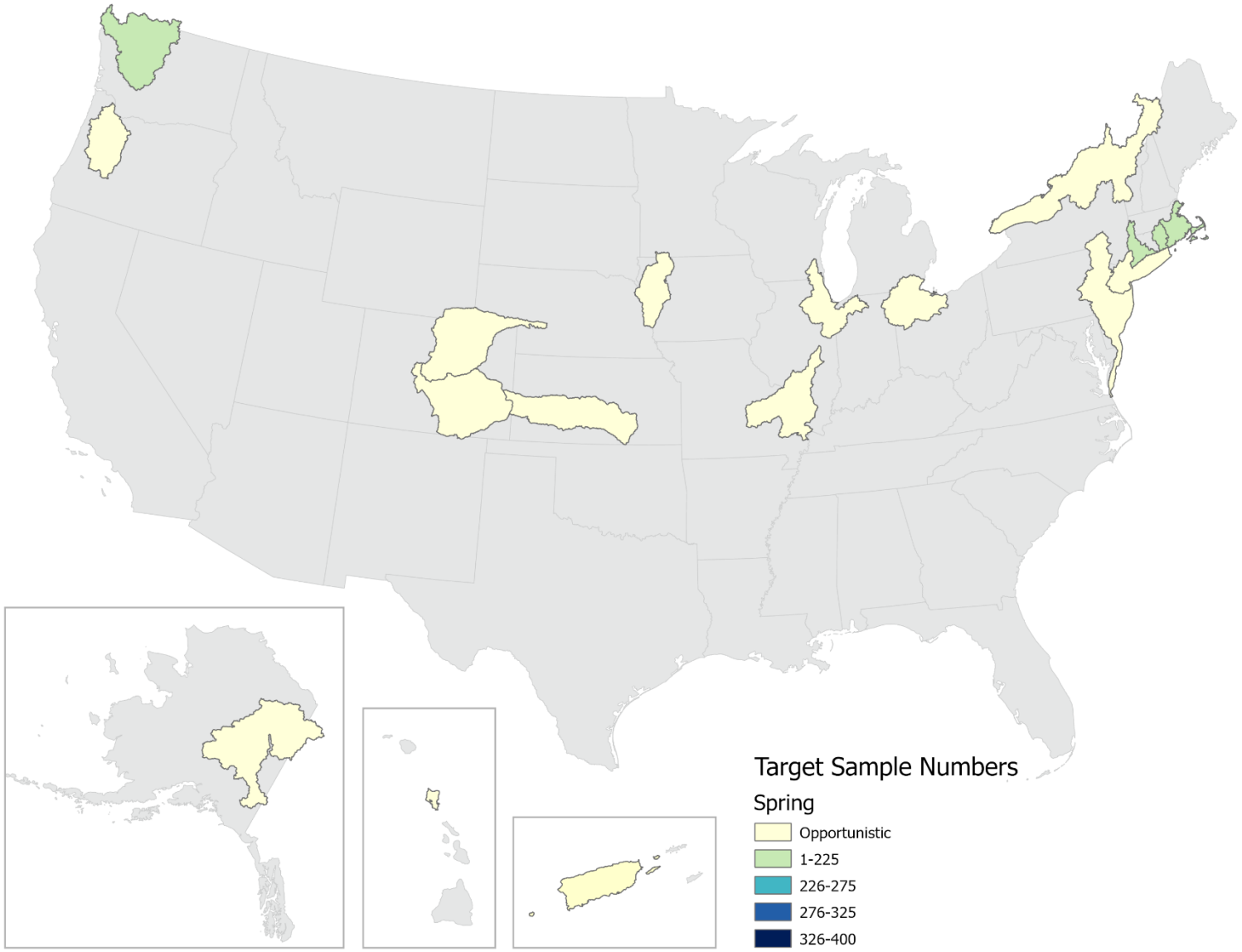
Fall (September – November):



Winter (December – February):



Spring (March – April):



APPENDIX 3. Participating NAHLN Laboratories

NAHLN Laboratories			
STATES	NAHLN LAB	SHIPPING ADDRESS	TELEPHONE
AK, ID, OR, WA	Oregon State University Veterinary Diagnostic Lab **PO# Contact NWDP**	Oregon State University Veterinary Diagnostic Laboratory Magruder Hall 134 700 SW 30th St Corvallis, Oregon 97331-8628	Phone: 541-737-3261
FL, ME, NH, NC, VT, PR/USVI	Bronson Animal Disease Diagnostic Laboratory **PO# Contact NWDP**	Bronson Animal Disease Diagnostic Laboratory 2700 North John Young Parkway Kissimmee, Florida 34741	Phone: 321-697-1400
GA, NJ, NY, SC, VA, WV	Animal Health Diagnostic Center College of Vet Med, Cornell University **PO# Contact NWDP**	Animal Health Diagnostic Center College of Veterinary Medicine Cornell University 240 Farrier Road Ithaca, New York 14853-8002	Phone: 607-253-3900
CT, DE, MD, MA, PA, RI	Pennsylvania Veterinary Laboratory **PO# Contact NWDP**	PA Veterinary Laboratory, Pennsylvania Department of Agriculture 2305 North Cameron Street, Harrisburg, PA 17110	Phone: 717-787-8808
IL, IN, MI, MN, OH, WI	Michigan State University Veterinary Diagnostic Laboratory **PO# Contact NWDP**	Michigan State University Veterinary Diagnostic Laboratory College of Veterinary Medicine 4125 Beaumont Road Lansing, MI 48910	Phone: 517-353-0635
AL, AR, IA, KY, LA, MS, MO, TN	Mississippi State University Veterinary Research and Diagnostic Lab **PO# Contact NWDP**	Mississippi Veterinary Research & Diagnostic Laboratory 3137 Highway 468 West Pearl, MS 39208	Phone: 601-420-4768
AZ, CA, MT, NV, NM, UT	Colorado State University College of Veterinary Medicine **PO# Contact NWDP**	Colorado State University Veterinary Diagnostic Laboratory 2450 Gillette Drive Fort Collins, CO 80526	Phone: 970-297-1281
KS, NE, ND, OK, SD, TX	Kansas State University, Diagnostic Laboratory **PO# Contact NWDP**	Kansas State Veterinary Diagnostic Laboratory 2005 Research Park Manhattan, KS 66502	Phone: 785-532-5651
CO, WY	Wildlife Disease Diagnostic Laboratory (WDDL) **PO# Contact NWDP**	Wildlife Disease Diagnostic Laboratory (WDDL) Attn: Jeff Chandler 4101 LaPorte Ave Fort Collins, CO 80521	Phone: 970-266-6090
HI	State of Hawaii, Department of Health State Laboratories Division **PO# Contact NWDP**	State Laboratories Division 2725 Waimano Home Road Pearl City, HI 96782	Phone: 808-453-6650

Lab State Assignments*

2026-2027 WS Wild Bird Surveillance

*States submitting to the same lab are grouped by color.

