Update on Status & Trends of Marine Birds in Alaska

Robb Kaler (U.S. Fish & Wildlife Service)

Lunch and Learn - UAF Bristol Bay Campus

14 November 2023

Many collaborators: Dan Cushing, Adrian Gall, Heather Renner, Marc Romano, David Irons, Gary Drew, John Piatt, Mayumi Arimitsu, Rob Suryan, George Hunt Jr., Alexis Will, Marty Reedy, Russ Hopcroft, Jacqueline Grebmeier, Katrin Iken, Seth Danielson, Franz Mueter, Alex DeRobertis, Gay Sheffield, Julia Parrish, Tim Jones, Jackie Lindsay, Stacia Backensto, Heather Coletti, Barb Bodenstein, Bob, Dusek, Caroline Van Hemert, Matt Smith, Brandon Ahmasuk, Patty Schwalenberg and many more…

Photo: Dan Cushing

Quyanaq and Igamsi!

We work in the lands & waters of

Iñupiat, Siberian Yupik, and Yupik peoples (Bering Strait Region)

Yup'ik, Alutiiq, Aleut (Bering Sea & Aleutian Islands)

Quyana to our funders and partners


~ 30 million seabirds breed in Alaska
+
~ 30 million birds migrate here in summer
What are seabird telling us?
T. Zeller

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+

~ 30 million birds migrate here in summer

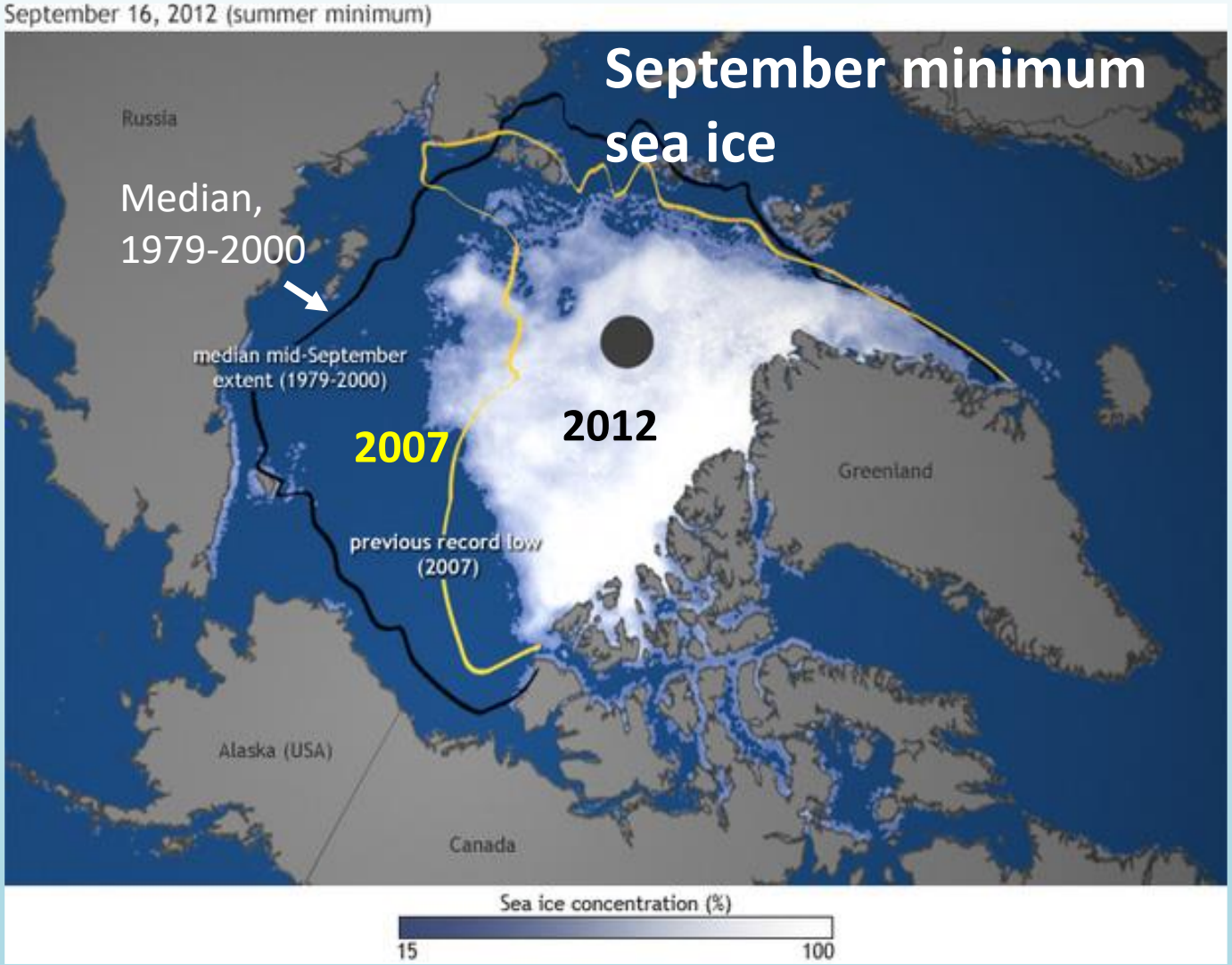
What are seabird telling us?

- During 2023, overall reproductive success at monitored seabird colonies was average (Alaska Maritime NWR)
- Reports of “large numbers” of beach-cast seabird carcasses were from three regions in August & September
  - 11-13 August: Goodnews Bay (Platinum), ~150 beached murres, 14 of 15 sampled carcasses H5N1 positive
  - 17-21 August: Nushagak Peninsula, ~ 250 beached murres, 4 of 5 sampled carcasses H5N1 positive
  - 14 September: Akutan Island, ~115 shearwaters, 6 carcasses tested and all were H5N1 negative
- Tracking the duration, geographic extent, and magnitude of seabird die-offs across Alaska’s expansive and remote coastline is only possible through well-coordinated communication and a dedicated network of Tribal, State, Federal, and university academic partners.

T. Zeller

Seabirds as indicators

Distribution and abundance	Location of prey
Reproductive success	Summer conditions
Diet	Prey community composition and availability
Survival	Winter conditions



From NOAA:
(https://www.climate.gov/news-features/featured-images/

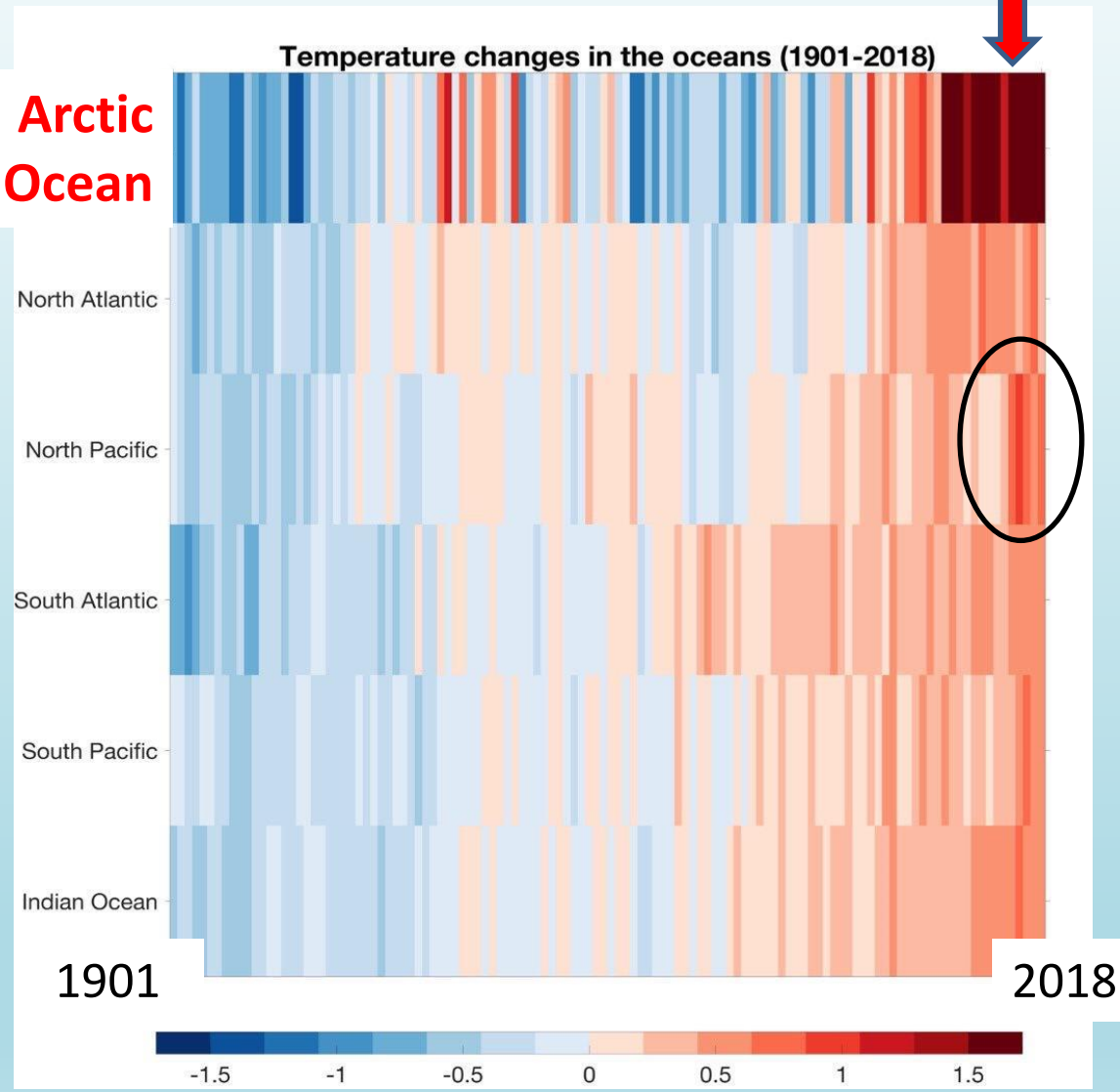
Climate Warming: Changes have been radical in marginal seas and at higher latitudes.

Diatom colonies under an ice flow.
Photo: Oliver Müeller.

Physical Drivers affect the base of the Arctic marine food web

We are here

Are there ‘winners’ & ‘losers’?



https://showyourstripes.info/
Hawkins (U. Reading); multiple sources of data

Common prey of seabirds in Alaska

Pacific Sandlance

- subtidal & nearshore; cyclic

Capelin

- Cold-water association

Juvenile Walleye Pollock

- Lower quality prey; expanding distribution

Juv. Arctic cod (in Arctic / Chukchi Sea)

- High quality prey but avoids warm temps

Euphausiids (Thysanoessa spp.)

- High quality; locally & seasonally abundant

Copepods (and small zooplankton)

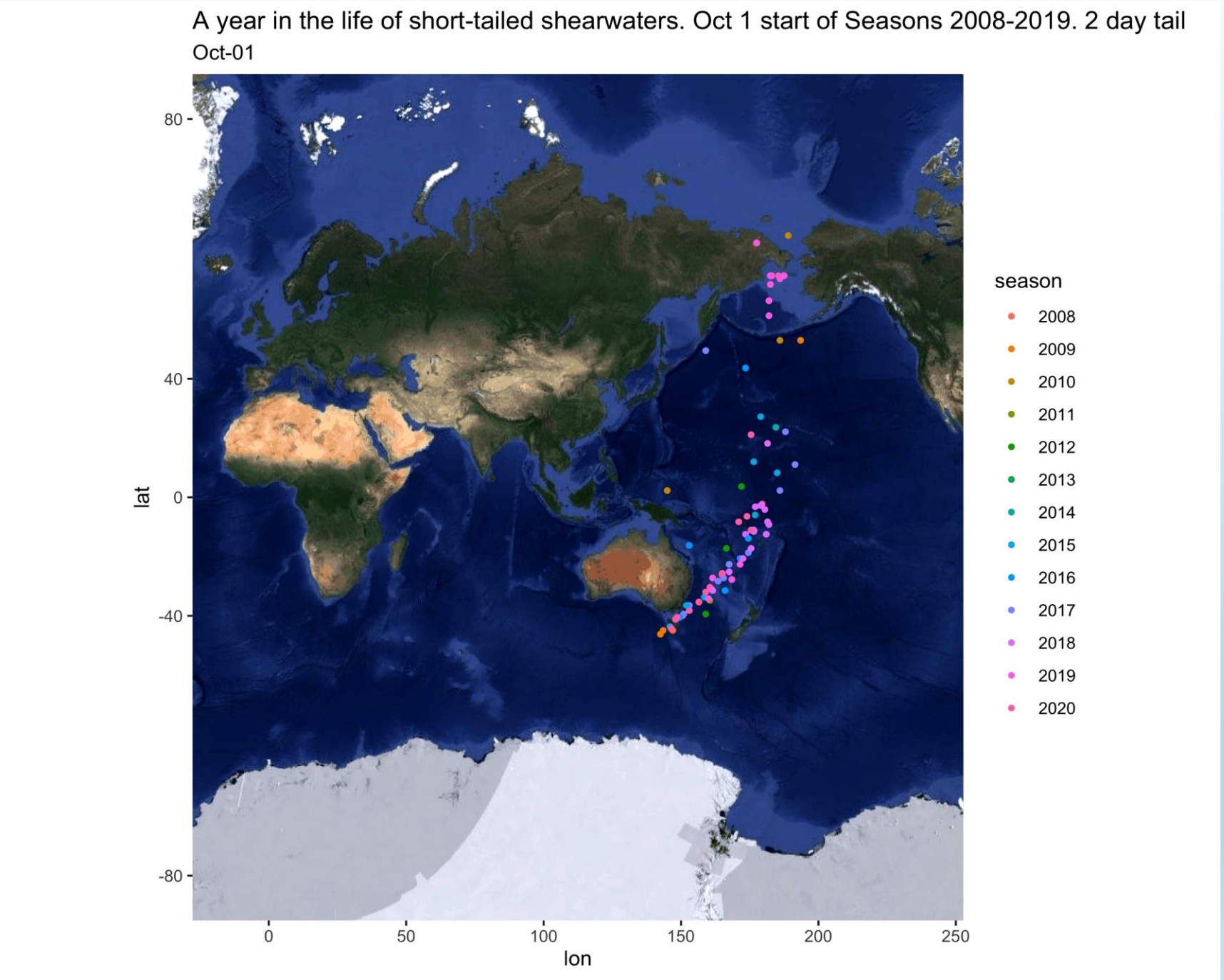
- vary in size and energy density

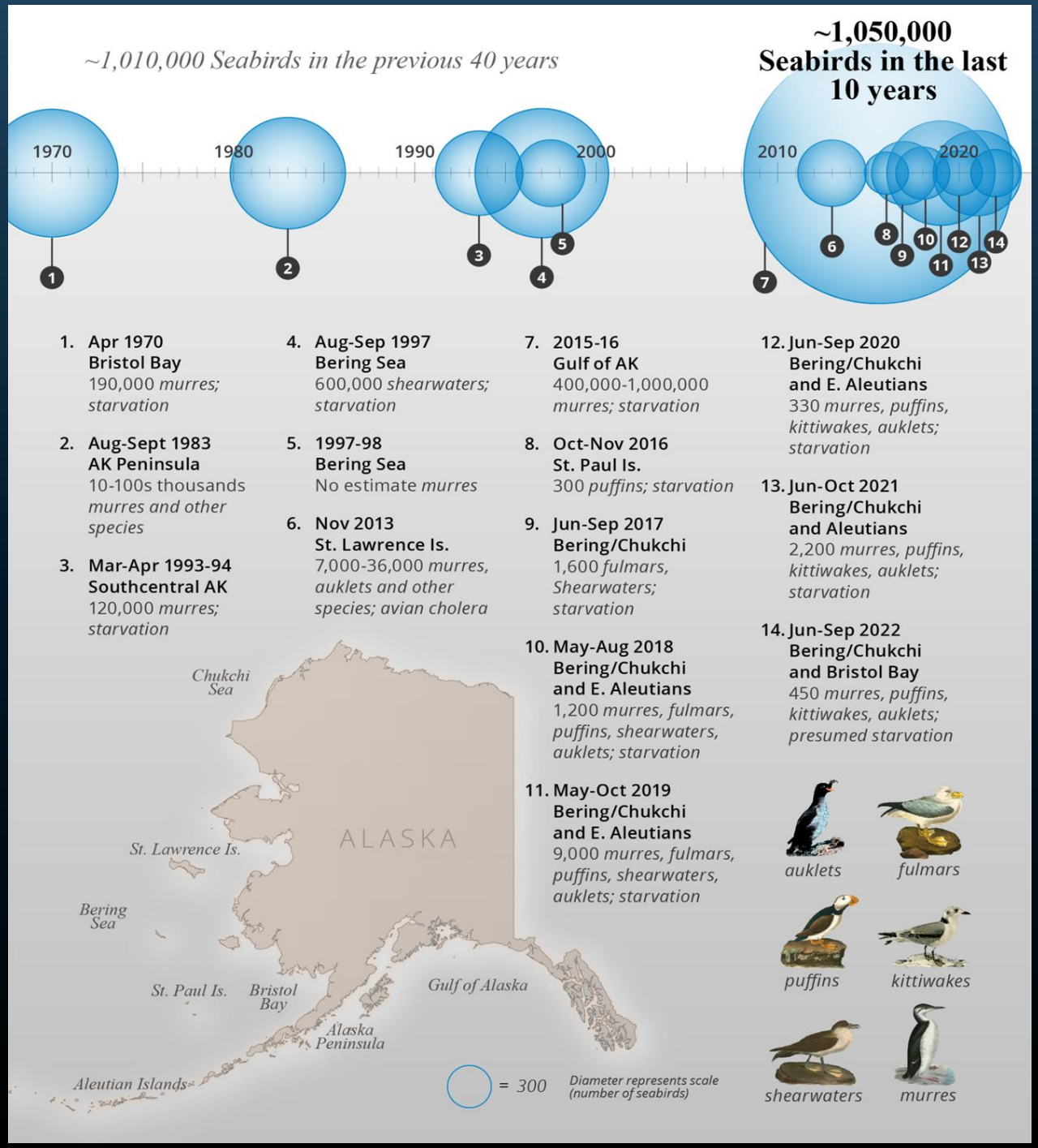
Short-tailed Shearwater's journey from S. Australia breeding sites to the Arctic

Geolocators (75 birds) retrieved at colony on Phillip's Island, AU; 2008-2020

75 birds, ~63,000 locations
Some birds with multiple years

Courtesy of Duncan Sutherland & David Boyle
(Phillip Island Nature Reserve)

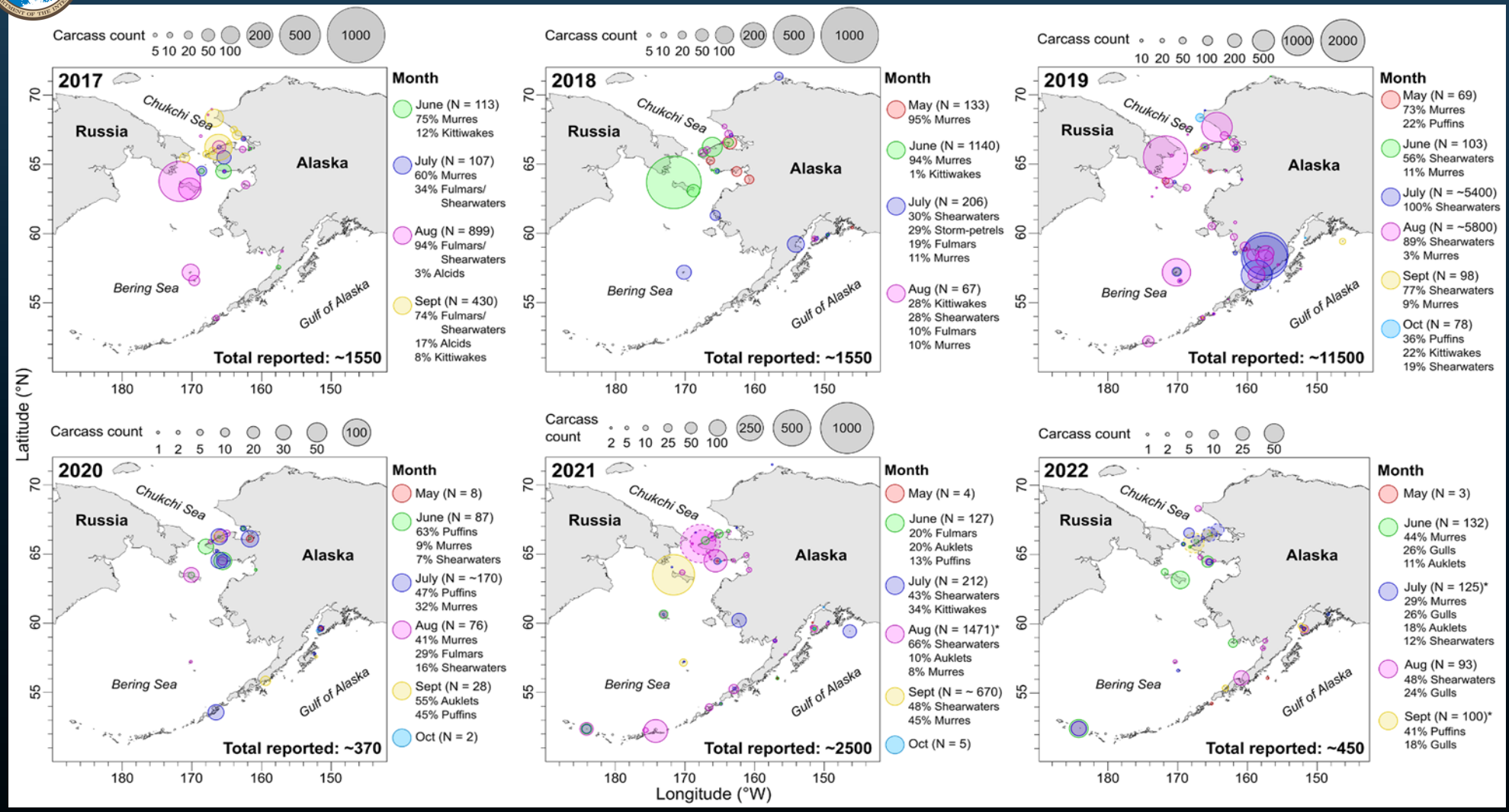




Seabird die-offs

- Alaska die-offs rare prior to 2015, now annual?
- Species at all trophic levels affected, some worse
  - Shearwaters in 2019
  - Thick-billed Murres in the Alaska Coastal Current 2018
  - Common Murres in GOA 2014/2015
- Public health concern for coastal communities

Seabird die-offs - Kaler *et al.* 2022 Arctic Report Card



- Reports courtesy of tribal, state, and federal partners, added to COASST citizen science data
- Fewer reports in 2020 and 2022

Seabird die-offs - Kaler *et al.* 2022 Arctic Report Card

	2017	2018	2019	2020	2021	Total
Total Reported	>1,600	>1,200	>9,000	>330	>2,200	>14,330
Total Examined	19	25	39	20	14	117
Reported Cause of Death						
Emaciation	17	19	31	13	12	92
Undetermined	0	3	2	1	1	7
Other	2	3	6	6	1	18
Avian Influenza Detected	0	2	0	1	1	4
Saxitoxin Detected	11	BDL*	3	1[&]	BDL*	15

*BDL - Below detection limits for the laboratory test used.

[&]Saxitoxin toxicosis was also suspected to be the cause of death.

Summary of 2017-2021

- >14,000 dead seabird reported
- 117 carcasses examined
  - 92 cases of emaciation (most frequently identified cause of death
  - 7 undetermined, 18 “other”
- 4 cases of Low Pathogenic Avian Influenza (some cases of HPAI in 2022 in gulls and jaegers which scavenge)
- Some exposure to saxitoxin

Source: Alaska Maritime NWR

(heather_renner@fws.gov)

Way above average

2017 = 4%
2018 = 22%
2019 = 43%
2022 = 70%
2023 = 43%

Average

2017 = 40%
2018 = 28%
2019 = 41%
2022 = 21%
2023 = 28%

Below Average

2017 = 40%
2018 = 31%
2019 = 13%
2022 = 9%
2023 = 24%

Complete Failure

2017 = 15%
2018 = 19%
2019 = 4%
2022 = 0%
2023 = 4%

Alaska Maritime National Wildlife Refuge

2023 Seabird Report Card

Region	Annual monitoring site	Red-faced cormorants	Glaucous-winged gulls	Common murres	Thick-billed murres	Horned puffins	Tufted puffins	Red-legged kittiwakes	Black-legged kittiwakes	Northern fulmar	Fork-tailed storm-petrels	Leach's storm-petrels	Parakeet auklets	Least auklets
Chukchi Sea	Cape Lisburne													
Bering Sea	St. George	☺		☺	•			☺	☺					☺
	St. Paul	•		☹	•			•	☹					
Aleutian Islands	Buldir		☺		☹	☺	☺	☠	☹		☹	☺	☹	☺
	Aiktak		☺	☺	☺	☺	☺				☺	☺		
Alaska Penin.	Chowiet	☺	☹	☺	☹	☹	☺		☠				☺	
Gulf of Alaska	East Amatuli		☺	☺			☹		☹		☹			
	St. Lazaria		☺	☺	☺						☺	☺		

Eggs represent overall productivity relative to the long-term average. **(Total = 46)** ☺ = **43% (20)** Way above average! • = **28% (13)** Average ☹ = **24% (11)** Below average ☠ = **4% (2)** Complete failure

Other Concerns for Seabirds, especially in the Arctic
Continue conservation efforts where/when we can

Increase in vessel traffic

Large scale commercial fishing

Pollution, plastics, contaminants

Invasive species, new diseases

Climate change, loss of sea ice

Auks at Diomedes, K. Kuletz

Cape Lisburne, K. Kuletz

Photo: Michael O. Snyder

Diomede Islands & auks: Kathy Kuletz, USFWS

HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI): UPDATE FOR THE AMBCC FALL MEETING

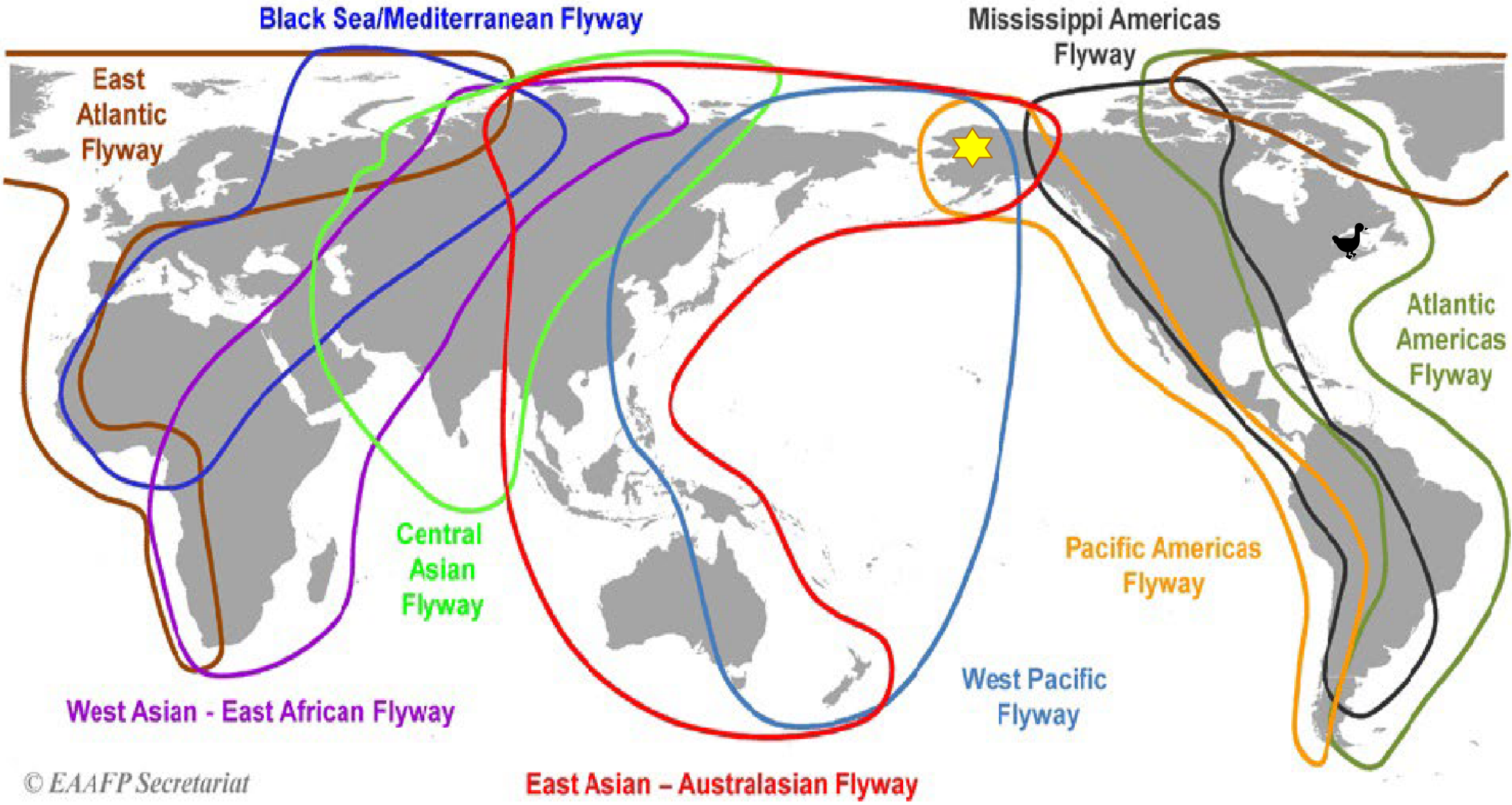
October 2023

WHAT IS HPAI H5N1?

Avian influenza (AI) is caused by a virus which infects poultry (chickens, domestic ducks) and wild birds (especially waterfowl).

- Pathogenicity, which is specifically defined by the ability to produce disease in poultry, like domestic chickens.
  - **Highly pathogenic AI (HPAI)** viruses evolve in poultry and are often fatal to chickens.
  - **Low pathogenic AI (LPAI)** viruses: wild waterfowl and mammals are reservoirs; rarely cause illness in them.

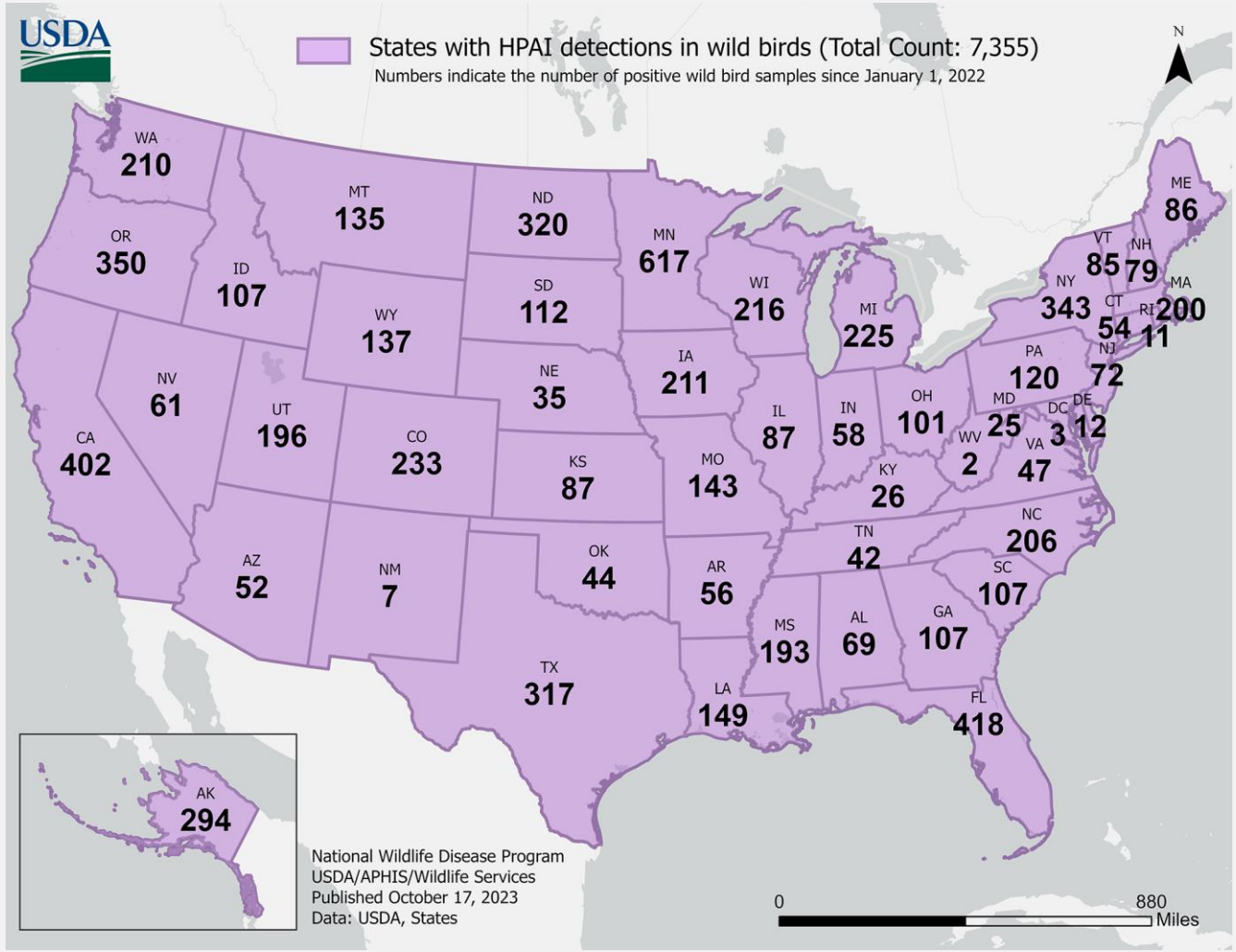
Source: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza, 7/29/22


Black Sea/Mediterranean Flyway
Mississippi Americas Flyway
East Atlantic Flyway
Atlantic Americas Flyway
Central Asian Flyway
Pacific Americas Flyway
West Asian - East African Flyway
West Pacific Flyway
East Asian – Australasian Flyway
© EAAFP Secretariat

OUTBREAK HISTORY

- Current HPAI outbreak began in 2020 in Europe
  - Previous global outbreaks – different strains - in 2004 and 2014-16
- First detected in North America in Dec 2021 in eastern Canada.
  - Spread westward across the continent, in domestic/commercial poultry and in wild birds.
- First Alaska confirmations: Late April, 2022
  - Also appears to have been three independent introductions into Alaska from East Asia throughout the year.
- Current detection totals in AK (17 October 2023):
  - Wild birds: 294 confirmed cases
  - Backyard poultry: 6 confirmed flocks (1,140 birds)
  - Wild mammals (3 red fox, 1 black bear, 1 brown bear).

CURRENT OUTBREAK OF HPAI IN NORTH AMERICA WILD BIRDS AND POULTRY



As of 17 October 2023…

- Confirmed detections in 49 U.S. states and all Canadian provinces
- 58.79 million domestic birds affected in U.S.
- >100 spp. of wild birds affected in U.S.
- 7,355 confirmed wild bird detections in U.S.

https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/hpai-2022/2022-hpai-wild-birds

SPECIES AFFECTED IN ALASKA

Raptors: **Bald Eagle**, Northern Harrier, Snowy Owl

Waterbirds: **American green-winged teal**, **American wigeon**, Black Brant, Cackling Goose, Gadwall, **Canada Goose**, Snow Goose, Lesser Scaup, **Mallard, Northern pintail**, Northern shoveler, Unknown Eider, Red-necked Grebe, Common Murre*

Corvids: **Common Raven**

Waders: Sandhill Crane, Great Blue Heron

Gulls/Terns/Jaegers: Arctic Tern, Black-legged Kittiwake, **Glaucous Gull**, Glaucous-Winged Gull, Parasitic Jaeger, **Sabine's Gull**, Short-Billed Gull, Thayer's Gull , Unknown gull

Shorebirds/Passerines: Dunlin, Tree Swallow

Seabirds: Common murres, shearwaters

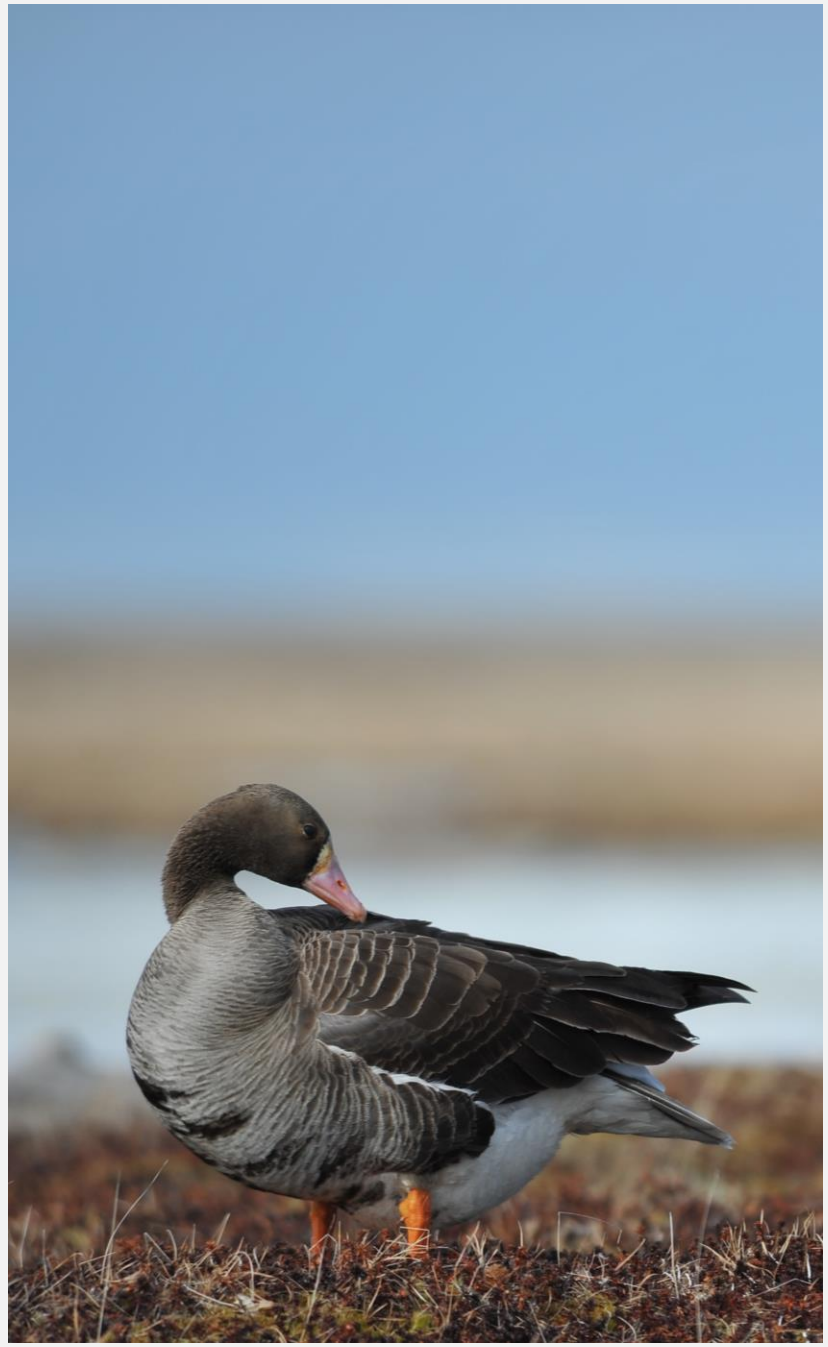
Domestic Poultry: Chickens/ducks/emus

Mammals: Red Fox, Black Bear, Brown Bear

*new species with positive HPAI detection in 2023

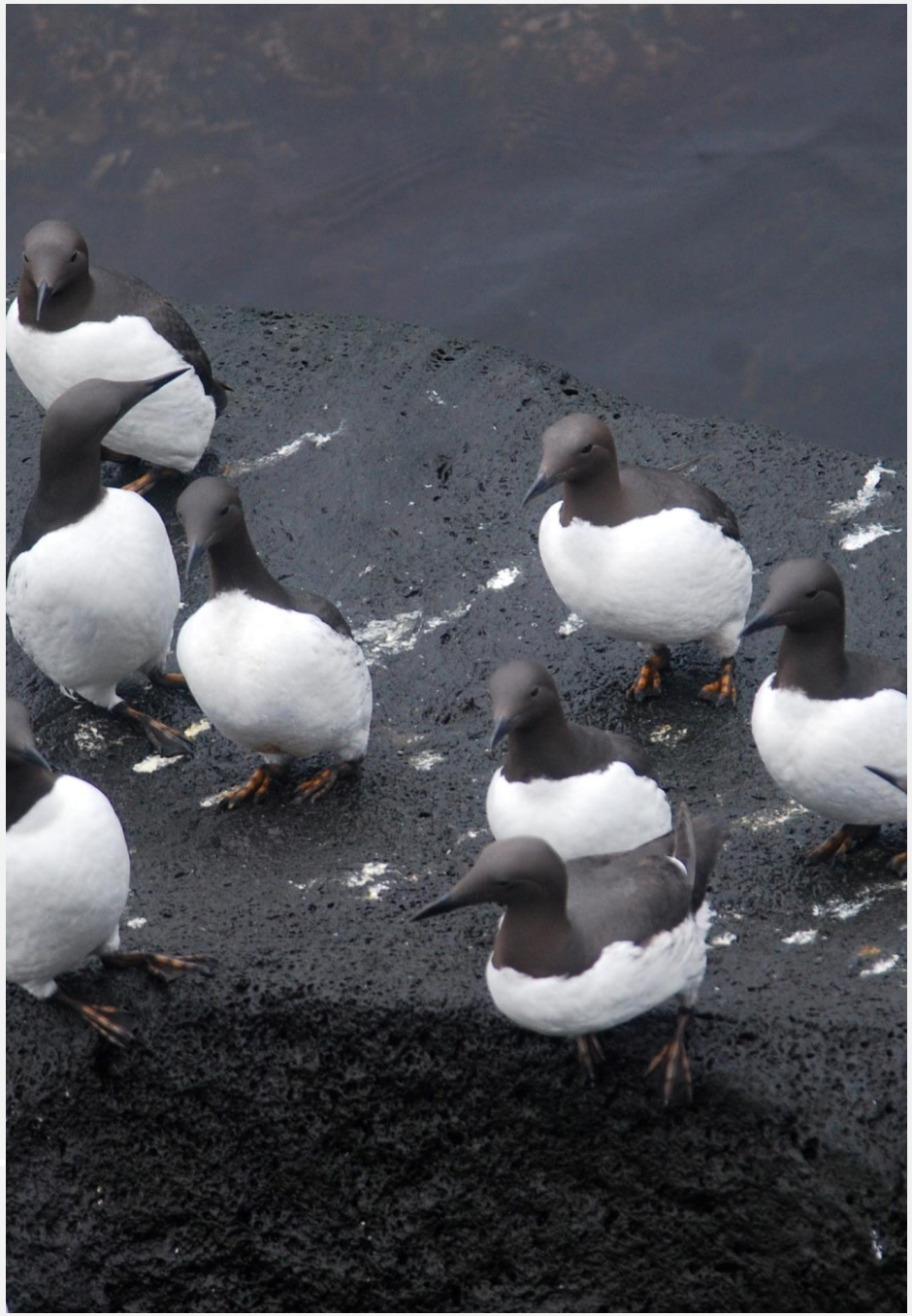
USFWS OBJECTIVES FOR 2023

- As resources allow, collect or assist in collecting carcasses statewide for HPAI testing
  - Alaska Office of the State Veterinarian in Anchorage, or at other testing facilities
- Coordinate with others to track HPAI geographically, over time, and among species
- Provide information to subsistence hunters



HPAI TESTING SUMMARY IN ALASKA

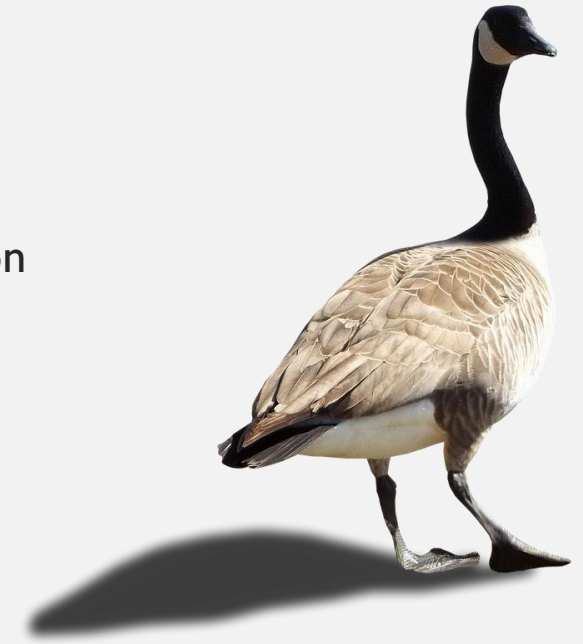
- 2023 Wildlife Sample Totals (tested by ADEC/ADF&G)
- 546 samples collected (January – October 2023)
- Mammals (fox, bear, marine mammals)
  - 58 tested, 1 positive detection (red fox, Matanuska-Susitna Borough)
- Wild Birds
  - 488 tests run, 38 positive detections (8%)
  - Currently unknown how many of the 488 tests were pooled samples of 2 or more swabs; could inflate the number of actual birds testing negative
  - All 38 positive detections, however, were individual birds



SYMPTOMS IN WILDLIFE

Birds with HPAI infections may:

- Appear disoriented,
- Be walking in circles
- Have jerky head movements
- Hold their neck or heads in an unusual position
- May be dead
- May be asymptomatic!



BEST PRACTICES

Minimum PPE for carcass or live bird collection:

- Face coverings – Masks
- Eye protection
- Hair tie
- Gloves – nitrile exam inner; larger rubber or nitrile outer if handling messy or large numbers of carcasses
- Washable/bleachable boots (e.g. Xtratuffs)
- Raingear that can be sprayed with bleach or clothing that can be washed in hot soapy water

Other items:

- Carcasses: coolers, ice packs, plastic bags (double-bag all carcasses)
- Data submission form – protect in a ziploc and something to write with
- Carcass tag: species, number, location (lat/long if possible, nearest waterbody), age, sex if known, circumstances
- Hand sanitizer

ADVICE TO SUBSISTENCE HUNTERS

Advice developed with tribal and State health agencies is very similar to USDA advice for hunters:

Even though HPAI is of low risk for human health, **Alaska hunters should still exercise caution while hunting and eating migratory birds by following these steps to reduce infection risk:**

- Do not harvest game that appear sick or are found dead.
- Wear rubber or disposable latex or nitrile gloves while handling and cleaning game.
- When done handling game, wash hands thoroughly with soap or disinfectant, and disinfect knives, equipment, and surfaces that were in contact with game.
- Do not eat, drink, or smoke while handling game.
- Cook game and eggs thoroughly to an internal temperature of 165 degrees.

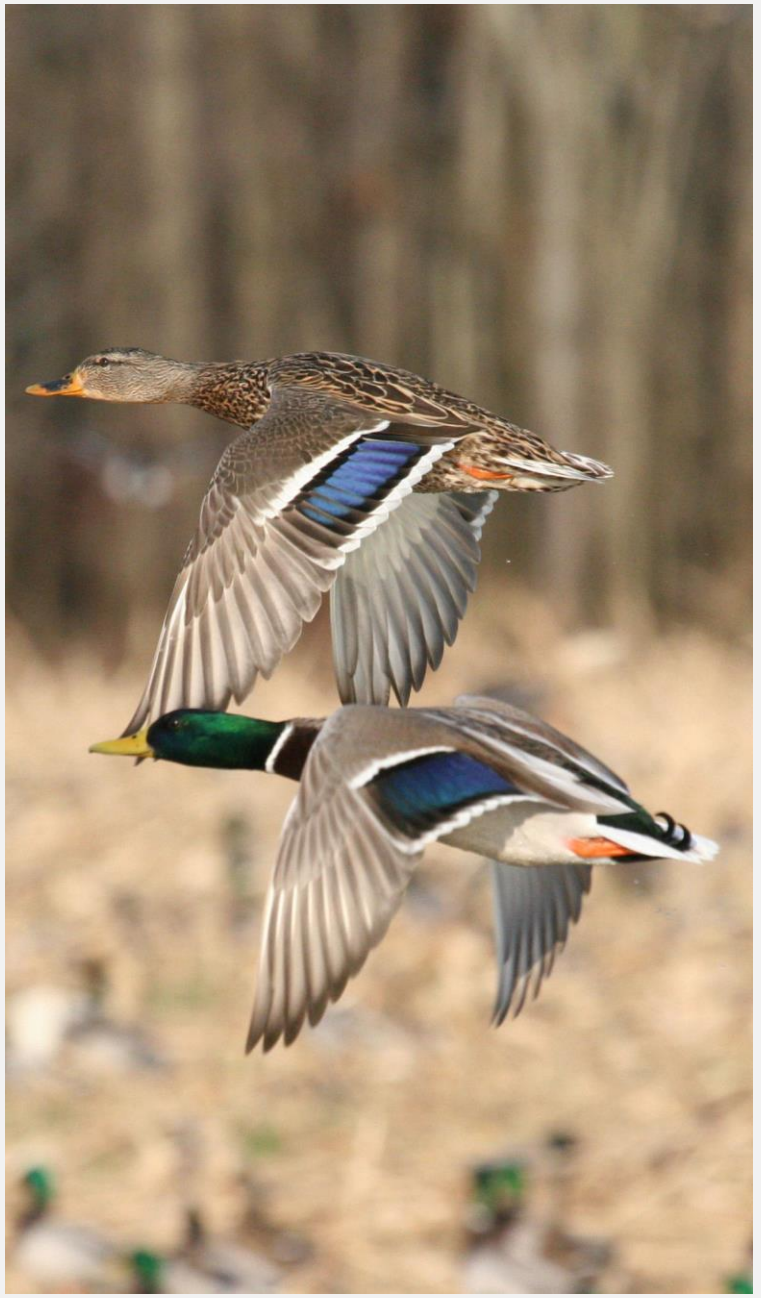


Photo ByClayton Ferrell/USFWS

REPORTING

Helpful information to include when reporting: location of the bird(s), species; number of birds; and whether the birds are dead, dying, injured or behaving in an erratic or abnormal manner, or have lost their fear of humans.

*To report dead or sick **wild birds:***

U.S. Fish and Wildlife Service Avian Flu Hotline

Toll free: **866-527-3358**

or **907-229-6357** (thru Oct. 31, 2023)

and report to the Local Environmental Observer Network:
www.leonetwork.org

*To report dead or sick **wild mammals**:* ADF&G Wildlife Veterinarian, **dfg.dwc.vet@alaska.gov**

*To report sick or dead **domestic birds**:*

Office of the State Veterinarian

907-375-8215

Quyanaq and Igamsi!

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Chukchi, K. Kuletz