

- Understand what types of activities can take place now to support best management practices to keep Avian Influenza from your islands.
- 2) Understand what types of activities could take place if Avian Influenza is found on your islands.
- 3) Understand and be able to safely take samples from dead birds for laboratory analysis.



Keeping your community safe from infection

Currently, the Pacific Islands are free of HPAI H5N1. This section is dividing up into actions that can be taken now to help keep your island free of the virus, and then what do to if your islands are threatened by the virus.

Actions to take now when your island is free of HPAI H5N1

(Steps 1 - 3, and Steps 5 - 8, and Tables 1 - 6, adapted from the US National Park Service, Biological Resource Management Division, Wildlife Health Program document, "Highly Pathogenic Avian Influenza in Wildlife Preparedness and Communication Plan," and the US National Park Service, Biological Resource Management Division, Wildlife Health Program document, "Highly Pathogenic Avian Influenza in Wildlife Response Plan.")

STEP 1: Identify designated regional and island avian influenza coordinators (HPAI coordinator)

Because of the potential rapid spread of HPAI H5N1, each island nation should have a coordinator who knows about the disease and how it could affect community resources. In many cases, the HPAI coordinator may be the Bioterrorism Coordinator.

Each island group (or region) should designate a Regional HPAI coordinator. The Regional HPAI coordinator should have a list of all island HPAI coordinators as well as public health, veterinary health and National Park Service (NPS), US Geological Survey (USGS), and US Department of Agriculture - Animal Plant Health Inspection Service (USDA-APHIS) contacts for the region.

STEP 2: Establish contact with cooperating agencies

It is suggested that initial contacts be made immediately in order to establish lines of communication and coordination. Follow-up communication should be made periodically, particularly if there is a change in the current HPAI-free status of the Pacific Island region. Examples of topics for discussion are included below, in Table 1.



Agency	Discussion topics		
Other Avian Influenza or	Share information and concerns.		
Bioterrorism units	• Share expertise (e.g., the island and Regional HPAI coordinator).		
	Coordinate communication with states and other agencies.		
Territorial or State	• Discuss available baseline information (e.g., migration patterns, congregation areas of high priority species, or known interactions between wild and domestic birds).		
forestry or agriculture (as	Share avian surveillance plans and results.		
appropriate) and U.S. Fish & Wildlife Service	Identify major issues and concerns.		
	Ask how their agency would propose to deal with wildlife concerns		
Torritorial or State	• Reiterate that your organization is concerned about the potential impact of HPAI on community resources and has concerns about management requirements if the disease occurs within the Pacific Island region.		
veterinarian's office and	Discuss management of domestic birds to minimize contact with wild birds.		
USDA APHIS - Area	Share avian surveillance plans and results.		
vetermanan-in-charge	 Ask them to keep your organization informed as appropriate and to contact your organization if a suspect case (or presumptive positive or confirmed positive case) is reported in or near your island. 		
Territorial or State Public	 Share information about your organization's preparations and communication materials. 		
Health Department or Ministry of Health	• Offer to cooperate in any state or community efforts should they become necessary.		
	Share your organization's contact information.		
	• Discuss available baseline information (e.g., migration patterns, congregation areas of high priority species, or known interactions between wild and domestic birds).		
	Identify major issues and concerns.		
Entities with shared	Share your institution's mission and willingness to cooperate.		
agencies, national or state	Share avian surveillance plans and results.		
parks, and counties.	 Ask how they would deal with wildlife concerns related to HPAI. 		
	 Ask them to keep your organization informed as appropriate. Ask them if they will contact your organization if they have a suspect case (and certainly a presumptive positive or confirmed positive case). 		
	• Reiterate that your organization is concerned about the potential impact of HPAI on island resources and has concerns about management requirements		
Poultry/domestic fowl operations (both backyard flocks and commercial flocks)	• Ask if they are aware of how to monitor for HPAI, how to protect their flocks, and who to contact if they have concerns (their private veterinary practitioner would be a good place to start).		
	 Share general information about your organization's preparations and communication materials. 		

Table 1: Coordination and communication with other agencies and entities



STEP 3: Provide basic information to colleagues and have information available for the public

General background information should be provided to all colleagues so that they are aware of the disease and its potential threat to island and community resources and human health. Workers should be made aware that your island, state, or territory has, or is preparing an Emergency Preparedness and Response Plan for HPAI H5N1. It is critical for everyone to know how to report mortality events (dead birds). A local process should be developed and connected to region-wide or international reporting system. Some other topics for discussion are found in Table 2.

Methods of distribution can include e-mail, hard copies posted on bulletin boards and sent to individual mailboxes, all-employee meetings, and training events.

Worker category	Information provided
All personnel	General information on disease and its potential threats to resources and human health.
	 Contact information for HPAI coordinator on how to report unusual mortality events.
	General sanitation, hygiene, and health precautions.
	International travel alert if traveling to HPAI affected area.
Livestock, Veterinary,	 Training on wildlife disease investigation and associated personal safety and PPE.
Paraveterinary, or Natural resources staff	 Contact information for HPAI coordinator and how to report unusual mortality events.

Table 2:	Information	to	provide	to	employees
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STEP 4: Keep informed of local, regional, and international developments

Keep apprised of local, regional, and international developments in the spread and threat of HPAI H5N1 by visiting the World Health Organization (WHO) website at www.who.int. The WHO is coordinating the global response to human cases of H5N1 avian influenza and monitoring the corresponding threat of an influenza pandemic.

To be connected on a consistent basis about events surrounding Avian Influenza and other similar situations, subscribe to free ProMed email list:

- Send an e-mail message to: majordomo@promedmail.org
- Type in the body of the message: subscribe promedigest <your email address> end

Similarly, periodically check out the University of Minnesota's Center for Infectious Disease Research & Policy (CIDRAP) website at:

http://www.cidrap.umn.edu/cidrap/content/influenza/avianflu/index.html

STEP 5: Assess the local circumstances in coordination with cooperating agencies

If the threat of HPAI H5N1 nears your island, or region, it is necessary for the HPAI coordinator to contact the appropriate cooperating agencies and re-evaluate the island's particular situation. Discussion topics may include planning efforts, surveillance activities, and jurisdictional issues should disease detection occur.

STEP 6: Working with cooperating agencies, provide information to employees and the public

Provide updated information to employees and the public on what is being done within your organization or on a regional level to respond to the threat of HPAI if it should occur in that area, and what they can do to help protect the island. Information on relative risk should be provided to help your staff, visitors, and the general public in understanding disease risk to humans. Additional topics may be discussed with specialized use groups (Table 3).



Many methods can be used to communicate information about HPAI and preventing its spread. Methods of communication may include electronic mail, employee meetings, community meetings, postings and signage, hard copy mailings, personal contact, interpretive programs, faxes and websites. It is important to reach out to owners of ducks, chickens, and fighting chickens.

User group	Discussion topics
Poultry farmers or	 Up-to-date information on island risk status.
scientists, general	Good hygiene reminders.
public	 Importance of surveillance efforts and reporting.
	Importance of separation between domestic and wild birds.
	 Management actions (See Step 7).
	 Provide information on safe handling and preparation of harvested birds.
	 Importance of reducing artificial congregations of birds to reduce potential for disease transmission.
	 Assure that avian researchers are aware of the threat of HPAI and implement appropriate personal safety practices and measures to prevent diseases transmission.
	 Cooperate with researchers performing HPAI live bird surveillance.
Human-use interests: • Chamber of	 Assure operators that your organization is aware of HPAI and its potential threat to island resources and human health.
commerce	
All community members	 Encourage reporting of wildlife mortality events, particularly in birds.
	Observe wildlife from a distance.
	 Communicate relative risk (e.g., why PPE is required for staff despite low risk to others).

Table 3:	User	group	contacts	and	discussion	topics.
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STEP 7: Implement preventative management actions to reduce the risk of HPAI

Each of the US-Affliated Pacific Islands can take preventative measures to reduce the risk of introduction of HPAI (Table 4).

Management objective	Action
Minimize interaction	Reduce/eliminate feral poultry from residential areas
wild birds.	 Reduce or eliminate contact between wild birds and poultry/pet birds by moving them indoors
	Do not accept illegal shipments of birds (live or dead)
	 Comply with existing agricultural health inspection regulations when moving birds between villages or islands
	 Promptly report unusual death or sickness events in poultry or wild birds to appropriate authorities

Table 4. Management actions to reduce the risk of I	HPAI
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STEP 8: Surveillance and detection action implementation

Over 40 species of wild birds have been shown to be susceptible to infection with HPAI H5N1 virus. While not all species infected necessarily exhibit clinical, visible signs, of the disease, the current virus strain(s) have caused morbidity (illness) and mortality (death) in a variety of avian species, particularly waterfowl and shorebirds. Five surveillance strategies have been identified for collecting monitoring and surveillance data on H5N1 virus in wild birds. Currently, there are no surveillance plans for domestic birds, but this wild bird plan does provide some solid ideas for surveillance best management practices and so it is shared here.

The systematic investigation of illness and death in wild birds to determine if H5N1 is playing a role in causing these maladies offers the highest and earliest probability of detecting the virus if it is introduced by, or to, migratory birds in the US and the Pacific Islands region. At this step, investigation of these events will be used as the primary means for surveillance and detection of HPAI H5N1 (Table 5).

It is important to emphasize that illness and death in wild birds can be due to a variety of causes. Laboratory testing is required to determine cause of death and to refute or confirm infection with HPAI. Instructions for HPAI surveillance are included in the NPS Highly Pathogenic Avian Influenza in Wildlife Response Plan. While awaiting diagnostic results, interim actions may need to be taken (Table 6).



Action	Activity
Procure sampling/shipping materials	 Carcass bags, shipping boxes, ice, disinfectant
	• PPE
	 Carcass transportation
Obtain necessary training	 Provided by local government, SPC, UH, USFWS, other DOI bureaus or other cooperators
Obtain necessary employee health review	Respirator use
Identify laboratory for sample	USGS National Wildlife Health Center
submission	 Other veterinary laboratories certified to conduct HPAI H5N1 virus diagnostics
Identify priority species	Bird species migrating from affected areas
	Waterfowl and shorebirds
	 Bird species with high infection rates (currently unknown)
Reporting system	 Identify key contact individuals
	 Develop system for reporting by employees, visitors, and residents
Respond to mortality events	Communication of events
	Evaluation of importance
	Available trained staff
	Transportation and logistics
Implement active surveillance and additional surveillance strategies	 Seek out mortality events rather than passively awaiting reporting.
	 Implement other surveillance strategies as needed on a site-specific basis.

Table 5:	Components of HPAI	surveillance and detection activities	



Action	Activity
Event investigation	 Document mortality event (e.g., location, species, age class, numbers).
	Maintain surveillance of site.
	 Collect carcasses and implement biosafety measures.
	 Assess need for involvement of a wildlife disease investigation team.
Consultation with regional and	Wildlife health
national programs	Public health
	Risk management
	Public affairs
	Directorate (based on assessment of risk)
	Review National and Departmental Plans
Communication	Press release
	Contact:
	State wildlife management agency
	State veterinarian's office
	State department of health
	• USDA APHIS
	• USGS, USFWS
Human safety	Limit visitation to affected area.
	 Assess employee health risk and implement necessary actions.

Table 6 [.]	Stens to	take while	awaiting H	PALH5N1	diagnostic results
	Sleps IU	lake wille	awalling II	FAILISINT	ulayiloslic results

Other actions to take while waiting include the continued surveillance of affected and surrounding areas for avian mortalities, limit movement of domestic birds, and continued communications with laboratories and health authorities.



What is an unusual mortality or morbidity event?

A mortality event is an animal death; a morbidity event is an animal illness that potentially leads to an animal death. According to the NPS, "Unusual mortality events are wildlife deaths that occur outside the range that is usually observed. Professional judgment, historical knowledge of the areas, and consultation with disease experts may be used to make the determination. Unusual mortality events can take different forms, including increased numbers found dead, duration of mortalities over time, or mortality that occurs at a different place or time of year than expected. Generally, a single dead bird does not constitute an 'event,' however, this observation may initiate monitoring for additional mortalities."

The Food and Agriculture Organization (FAO) has similar recommendations for surveillance for unusual mortality or morbidity events. According to the FAO, "an official veterinary field investigation should be launched when the surveillance efforts reveal that a "trigger point" has been reached." (FAO Expert Meeting, July 21-23, 2004)

Trigger points for chickens in each production sector

Sector	Trigger point for chickens
Production Sector 1	Food and water intake reduced by 20% for one day; or mortality of 1% for 2 days
Production Sector 2	Daily mortality of 1% for 2 days
Production Sector 3	Daily mortality of 1% for 2 days
Production Sector 4	Daily mortality of 5% for 2 days

(FAO Expert Meeting, July 21-23, 2004)

Sector 1: Industrial integrated system with high level biosecurity and birds/products marketed commercially (e.g. farms that are part of an integrated broiler production enterprise with clearly defined and implemented standard operating procedures for biosecurity).

Sector 2: Commercial poultry production system with moderate to high biosecurity and birds/products usually marketed commercially (e.g. farms with birds kept indoors continuously; strictly preventing contact with other poultry or wildlife).

Sector 3: Commercial poultry production system with low to minimal biosecurity and birds/products entering live bird markets (e.g. a caged layer farm with birds in open sheds; a farm with poultry spending time outside the shed; a farm producing chickens and waterfowl).

Sector 4: Village or backyard production with minimal biosecurity and birds/products consumed locally.



According to the FAO recommendations, the trigger point for village or backyard production is a daily mortality of 5% for two days. For example, if you have 20 chickens in your backyard or village flock, the trigger point would be reached if you found one (1) dead chicken on Monday, and then another single (1) dead chicken on Tuesday. For this reason, it is essential to be vigilant about watching and caring for your flock.

What to do with sick or dead birds

(From the FAO document, " PROTECT POULTRY – PROTECT PEOPLE")

- Report sick or dead birds immediately to the veterinary authorities (or local equivalent)
- Do not leave dead animals lying around
- Do not feed dead birds to pigs, other domestic animals, or fish
- Do not throw dead animals into rivers, lakes, ocean, or other bodies of water
- If you have an intact plastic bag, place the carcass in the bag; if you do not, take the carcass away from the rest of the flock and out of reach of children and others
- Leave disposal of bird carcasses to the veterinary authorities (or local equivalent) and help only if they ask
- If there are no veterinary authorities (or local equivalent), seek help from your local community to dispose of carcasses (by burning)
- Do not eat the carcass of a dead bird
- Do not sell the carcass of a dead bird

Reporting an unusual mortality or morbidity event

Reporting of Unusual Mortality or Morbidity events will vary by island and country. Some states, territories, and nations have telephone hotlines, with 24 information regarding collection and disposal information.

Do you know the dead bird collection procedure on your island?

Your local Dead Bird Hotline phone number: _____



Setting up an Avian Influenza surveillance program

Each island must develop an Avian Influenza Surveillance Program, and an accompanying protocol for surveillance testing. Some islands will have assistance from the Secretariat of the Pacific Community (SPC); some islands will have assistance from the US Fish and Wildlife Service (FWS) and the US Geological Survey (USGS), on behalf of the Pacific Flyway Council; some islands may receive assistance from the National Park Service. Be sure to identify the individuals and organizations that are prepared to provide support to your island.

The Pacific Flyway Council has identified four methods for collecting specimens (or samples) for Avian Influenza testing:

- Sampling Live Birds
- Sampling Hunter-Harvested Birds
- Environmental (water, soil) Sampling
- Detection and Response to a Mortality/Morbidity Event

In addition to these four methods, the FWS and USGS have contributed an additional sampling method: Sampling Sentinel Birds. (For detailed information, please read "A Surveillance Plan for HPAI H5N1 Avian Influenza in Wild Migratory Birds in Hawaii and the US Affiliated Pacific Islands," prepared by the Pacific Islands Fish and Wildlife Office, FWS, and National Wildlife Health Laboratory, USGS).

Due to the unique environment on each island, the above sampling methods may not be appropriate for all islands. In developing a surveillance plan, it will be important to evaluate the island's environmental resources, and the human resources.

Within the surveillance plan developed by the Pacific Islands Fish and Wildlife Office in Honolulu, Hawaii, the primary sampling method will be "Mortality Surveillance," a method similar to the afore mentioned Detection and Response to a Mortality/Morbidity Event. During mortality surveillance, all birds found dead on an island will be tested for HPAI H5N1.



Shipping samples for laboratory testing

Due to the limited laboratory infrastructure of the Pacific region, the vast distances involved, and the limited postal and freight transportation services, the largest hurdle to establishing an Avian Influenza Surveillance Program is developing a plan for getting the specimens (or samples) to a diagnostic laboratory.

Diagnostic testing of specimens or samples must be conducted in a Biosafety Level 3 Laboratory (BSL-3). Honolulu, Hawaii, has a BSL-3 laboratory as does Australia.

Biological specimens or samples must be properly packaged and transported in order to protect the sender, the shipper, and the laboratory (the recipient). Depending on the sampling method, and the transportation method, the sender may need a Dangerous Goods Shipper certification.

Collecting samples for laboratory testing

On the following pages are two methods for collecting specimens for Mortality Surveillance:

- Collecting and Preparing Whole Carcass (Whole Bird) Specimens
- Collecting and Preparing Cloacal Swab Samples



Collecting and preparing whole bird specimens

Text and Graphic from National Park Service, "Highly Pathogenic Avian Influenza in Wildlife Response Plan"

INSTRUCTIONS FOR COLLECTION AND SHIPMENT OF AVIAN AND MAMMALIAN CARCASSES

Please follow these instructions for collecting and shipping carcasses to the National Wildlife Health Center (NWHC) to insure adequate and well preserved specimens, and compliance with Federal shipping regulations.

1. More than one disease may be affecting the population simultaneously. When possible, collection of both sick and freshly dead animals increases chances for detecting most diseases. Collect and ship specimens representative of all species and geographic areas.

Obtain good specimens for necropsy. Carcasses that are decomposed or scavenged are usually of limited diagnostic value. Ideally, one should collect a combination of freshly dead animals and animals that were euthanized after their behavior is observed and recorded.

2. Collect animals under the assumption that an infectious disease or toxin is involved and other animals may be at risk. Remember to protect yourself as some of these diseases and toxins are hazardous to humans.

Use rubber, vinyl, or nitrile gloves when picking up sick or dead animals. If you do not have gloves insert your hand into a plastic bag. Immediately attach a leg tag to each animal with the following information in pencil or waterproof ink:

- species
- date collected
- location (specific site, town, county, state)
- found dead or euthanized
- collector (name/address/phone)
- additional history on back of tag

Place each animal in a plastic bag, tie shut, then place inside a second bag and tie shut (more then one individually bagged animal can be placed in the second bag). This system of double bagging prevents cross-contamination of individual specimens and leaking shipping containers that can contaminate vehicle surfaces and handlers during transportation.

Tag the outside bag with number of animals and type, date collected, location, and name of collector. TAG, BAG, TAG

Contact the NWHC for assistance with collecting samples from animals that are too large to ship.

If you plan to collect animals, take along a cooler containing ice to immediately chill the carcass(s).



3. Ship animals in a hard sided plastic cooler or a styrofoam cooler placed in a cardboard box. Unprotected styrofoam coolers break into pieces during shipment. *Stuff* newspaper in any space between the sides of the box and cooler. A shipping container can be made by lining a cardboard box with at least 1-inch thick pieces of styrofoam. Hard sided (plastic) coolers and reusable coolant will be returned if labeled with your name and address in permanent ink.

Line either type of cooler with a large plastic bag and pack the individually bagged animal(s) in the cooler with enough blue ice or similar coolant to keep carcasses cold. Blue ice (hardware or department store) is preferred to bagged wet ice to avoid leaking during shipment. Do not use dry ice unless instructed to do so. Place crumpled newspaper or similar absorbent material in the cooler with the bagged carcasses to fill unused space, keep ice in contact with carcasses, provide insulation, and absorb any liquids. Tape cooler or box shut with strapping tape. Place a detailed history of the animal and circumstances associated with the mortality event in an envelope and tape to the outside of the cooler.

4. NWHC DOES NOT PAY FOR SHIPPING. Prior to shipping contact the laboratory at 608-270-2400. Ship specimens by one day (overnight) service from Monday through Wednesday to guarantee arrival at NWHC before the weekend. If specimens are fresh and need to be shipped on Thursday or Friday please call NWHC to make special arrangements.

Freezing and thawing can make isolation of some pathogens difficult and damage tissues needed for microscopic examination. The NWHC prefers unfrozen specimens if they can be sent usually within 24 hours of collection or death. We will provide guidance on when or if to freeze







samples on a case-by-case basis. If you are in the field and cannot call or ship within 24-36 hours, freeze the animal(s).

In addition to the NWHC address, please write **DIAGNOSTIC SPECIMENS -WILDLIFE** in the lower left corner to cover federal shipping regulations and ensure delivery of coolers with specimens to our necropsy entrance. Also mark the package **KEEP COLD.** Please make a not of the track number in case packages are delayed.

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Collecting and preparing cloacal samples

Pictures and text adapted from "Sampling, Handling, and Shipping of Diagnostic Samples (Cloacal Swabs) for Avian Influenza Testing," a presentation by Chris Franson, National Wildlife Health Center.

- 1. Materials needed to collect sample:
 - Personal Protective Equipment (gloves, respirator, goggles, booties, tyvek suit, hand sanitizer)
 - Dacron swabs
 - Transport media or RNAlater
 - Scissors
 - Permanent marker
 - Plastic bags
 - Trash bags



Slide from Chris Franson's presentation, "Sampling, Handling, and Shipping of Diagnostic Samples (Cloacal Swabs) for Avian Influenza Testing."



2. Collect sample

Insect entire dacron head of swab; move in a circular motion to contact inside wall of clocaca to collect cloacoal sample.





Insert entire dacron head of swab; move with a circular motion to contact inside wall of cloaca to collect cloacal sample vs fecal sample



USGS

Slide from Chris Franson's presentation, "Sampling, Handling, and Shipping of Diagnostic Samples (Cloacal Swabs) for Avian Influenza Testing."





Procedure for preserving sample (photos from Chris Franson's presentation, "Sampling, Handling, and Shipping of Diagnostic Samples (Cloacal Swabs) for Avian Influenza Testing."





- 3. Preserving the sample
 - TIP: Twist off cap of transport tube, keeping cap in your pinky finger.
 - Place sample in transport tube with transport media or RNAlater. Be sure that the swab head is fully covered by the transport media or RNAlater.
 - Trim the end of the dacon swab, careful not to spill the transport media or RNAlater.
 - Leave swab in media
 - · Carefully put on cap of transport tube and tighten cap
 - Disinfect gloves and exterior of transport tube with alcohol wipes
 - Label transport tube
 - Place in plastic bag with absorbent material (in case of spill)

Shipping protocols and specimen submittal forms

Shipping protocols and Specimen Submittal forms (see an example on the next page) will vary between laboratories and take into consideration the transportation and time requirements to reach the diagnostic laboratory.

CONTACT THE DIAGNOSTIC LABORATORY (OR RECEIVING LABORATORY) <u>BEFORE</u> SHIPPING ANY SAMPLES OR SPECIMENS.



U. S. GEOLOGICAL SURVEY NATIONAL WILDLIFE HEALTH CENTER-HONOLULU FIELD STATION WILDLIFE LOSS REPORT FORM		
CONTACT INFORMATION		
FOUND BY:		PHONE
SUBMITTED BY:		PHONE
AFFILIATION:		
ADDRESS:		
DATE FOUND:	ISLAND:	
SPECIFIC SITE:	GPSLAT	:GPSLONG:
SPECIES (e.g. owl, tern, boobie, etc) 1) 2)	ANIMAL INFORMAT	ION NUMBER les/adults/juvenile if known)
3)		
4)		
ESTIMATED TIME OF DEATH:		
LOSS SITE River/stream Lake/Pond Estuary/Bay Ocean Field (Agriculture) Road Town/City Forest Airport If captive, died where and with	SUSPECT CAUSE Disease Pesticide Fertlizer Poison Weather Accident Other	DURATION OF LOSS Hours Months Years
PLEASE SEE BACK FOR INSTRUCTIONS ON HANDLING AND SHIPPING CARCASSES		

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Notes . . .



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