

# SOP 1 – Safety

## *Northeast Temperate Network*

Version 1.22

### **Definitions (alphabetical)**

Boat Captain: Refers to the licensed pilot of the water craft used for implementing the Coastal Breeding Birds Monitoring protocol. The captain has primary responsibility for the safety of passengers while traveling and landing, and has the final say on safety procedures while passengers are on board the vessel.

Lead Scientist: Refers to the individual responsible for coordinating implementation of the coastal breeding bird protocol.

Monitoring Personnel: Refers to all personnel engaged in activities related to this protocol. This includes National Park Service (NPS) and other Boston Harbor Island Partnership agency employees, cooperators, contractors, and volunteers either actively participating in or observing monitoring activities.

Volunteers: Refers to any individual participating, but not being paid to participate, in water bird surveys. Volunteers are required to have a signed a Volunteer Agreement and Acknowledgement of Safety Training form before participating in any surveys.

Park Staff: Refers to an employee of one of the Boston Harbor Island Partnership agencies. The Park Staff member has primary emergency response authority during land-based portions of surveys and primary responsibility to document and communicate any safety concerns or incident response.

### **Overview**

This Standard Operating Procedure (SOP) describes basic safety procedures that should be followed during coastal breeding bird sampling at Boston Harbor Islands National Recreation Area (BOHA). Personnel safety is the number one priority at all times. The coastal zone, because of frequent transitional travel between land and water, is an inherently dangerous place. Travel and work in boats and on shorelines requires careful, methodical movement. Awareness of weather, swell, and waves is crucial to safe coastal conduct. Monitoring personnel should be aware of the risks associated with implementing this protocol and what they can do to mitigate them.

The Northeast Temperate Network (NETN) considers the occupational health and safety of its employees, cooperators, contractors, and volunteers to be of utmost importance, and is committed to ensuring that all Monitoring Personnel receives adequate training on NPS safety procedures prior to field work. This SOP and supporting appendices were designed to provide a summary of safety issues that should be covered during the pre-season training, and to serve as a first reference in case of an incident. Topics covered in this document and its appendices include emergency procedures and contacts, incident reporting, field preparation, safe field procedures, boat safety, and workers compensation procedures. This SOP does not cover first aid.

Since this protocol utilizes both professional (paid) and volunteer personnel, each with their own level of responsibilities, this SOP has been structured to facilitate delivery of role appropriate safety information to both audiences. Professional personnel (i.e. park staff and contractors) with full emergency response and pre-season responsibilities should read and understand the entire SOP and

## SOP 1 – Safety

all appendices. Volunteers, who are responsible for their own safe conduct but not for coordinating an emergency response, will need to read and understand just the appendices.

### *Appendix SI.A: Responding to an Incident*

Specific steps to be taken during both incidents requiring an emergency response and incidents that do not.

### *Appendix SI.B: Islands Owners and their Contacts*

Map of the islands of Boston Harbor and emergency contact information.

### *Appendix SI.C: Basic Radio Information*

Simple instructions on how to use the radio carried by park rangers.

### *Appendix SI.D: Job Safety Analysis (JSA)*

Documents specific hazards associated with this protocol and recommends approaches to mitigate these hazards.

### *Appendix SI.E: Green-Amber-Red Risk Assessment (GAR)*

A general assessment of the risks associated with conducting the field-based activities of the NETN Coastal Breeding Bird Monitoring Protocol.

### *Appendix SI.F: Acknowledgement of Safety Training*

A form required to be signed annually by all Volunteers of the program signifying that they have read all required safety documentation associated with the NETN Coastal Breeding Bird Monitoring Protocol.

## **Season Preparation**

### ***Safety Procedure Review***

Each year prior to the start of the field season, the NETN Program Manager, Lead Scientist, and BOHA volunteer coordinator will work together to review safety procedures and update emergency contact tables. This Safety SOP will need to be reviewed and modified to incorporate any procedural changes in time for the spring training session. First aid kits should be checked and restocked with first aid supplies and should also include the most recent version of instructions on how to respond to an incident (Appendix S1.A), contact information for each island (Appendix S1.B), and basic information on operating a park radio (Appendix S1.C).

### ***Pre-Season Training***

All safety topics outlined in this SOP are to be thoroughly covered during a training session led by the Lead Scientist and BOHA volunteer coordinator held prior to the start of the field season. Training for the coastal breeding bird monitoring protocol is conducted annually during a single 4-6 hour session in mid-May. Safety responsibilities and requirements of Park Staff and Volunteers will be clearly differentiated during this training. It is the responsibility of the Lead Scientist and BOHA volunteer coordinator to insure that any Monitoring Personnel who begin their service without having attended the pre-season training are provided with this SOP and fulfill all the requirements included within.

Even though emergency response responsibilities differ depending on an individual's team role, all Monitoring Personnel are equally responsible for maintaining a safe work environment for themselves and their coworkers and insuring that safety remains at the forefront of daily activities throughout the field season. Everyone should clearly understand routine and emergency communication procedures and how to respond to medical emergencies as well as non-medical emergency incidents. Everyone should also carry the required supplies with them into the field in order to promote their own safety as well as allow them to respond effectively to an incident. More information on items recommended for personal safety is listed in the Personal Gear section of this SOP as well as in the protocol's Volunteer Handbook.

### ***Job Safety***

To a large extent, preventing accidents is a matter of recognizing and managing risks. To that end both a Job Safety Analysis (JSA; sometimes called a Job Hazard Analysis or JHA) and a Green-Amber-Red Risk Assessment (GAR) have been included as a part of this SOP (Appendices S1.D and S1.E). Both of these important tools outline the potential risks associated with participating in the Coastal Breeding Bird Monitoring Protocol and outline appropriate measures or behaviors to minimize them. This approach is consistent with NPS Directors Order 50, Reference Manual 50B for Occupational Health and Safety, and the 2011 NPS Operational Leadership Student Manual.

Both the JSA and GAR will be reviewed during pre-season training and are required annual reading for all Monitoring Personnel engaged in field activities related to this protocol.

### ***Emergency Response***

Regardless of efforts taken to reduce risk, accidents can and do happen. Prior to entering the field, all Monitoring Personnel should feel prepared to request help or initiate an emergency response if necessary. Specific steps, current contact information, and a map of island ownership are available at the end of this document (Appendices S1.A and S1.B).

## SOP 1 – Safety

Steps for responding to an incident will be taught during pre-season training, are required reading for all monitoring personnel engaged in field activities related to this protocol, and are available in the first aid kit accompanying each survey.

### ***First Aid Kits and Training***

A first aid kit should be with the crew at all times while in the field. An inventory of first aid kits should be performed prior to each field season to ensure that all medical supplies are in sufficient quantity and haven't expired. Medical supplies that are used should be promptly replaced. In addition to medical supplies, each first aid kit will have an inventory list of the supplies contained within it and a current copy of Appendices S1.A, S1.B, and S1.CB to reference in case of an incident.

It is strongly encouraged that at least one team member (in addition to the licensed Boat Captain) have current first aid and CPR certification.

### ***Daily Communication and Planning***

A park staff member with a cell phone and park radio will participate on each monitoring trip. Any Monitoring Personnel carrying additional communication devices (e.g. cell phones) should notify the rest of the crew during the dock-side pre-trip safety briefing. All Monitoring Personnel must be familiar with the operation and capabilities of the primary communication devices. Training for use of the park radio in the event the Park Staff is compromised will be covered during pre-season training. Basic radio information is also covered in Appendix S1.C. Unless they are water proof, communication items should be stored in a water resistant or water proof container (e.g. Ziploc bag).

Prior to the field season and as updates become available, the Lead Scientist and park volunteer coordinator must provide the island owners, NETN Program Manager, and the appropriate park staff with an outline for each trip (a.k.a. 'trip plan'). These trip data will be entered into the Boston Harbor Islands Programs and Events Database in order to make them available to all personnel (<https://www.quickbase.com/db/main?a=SignIn>). At a minimum, the trip plan must contain the:

- date and purpose of trip;
- names of all people on trip;
- destination and route, including map with the sampling location clearly marked;
- time of departure from dock and estimated time of return to or dock;
- radio frequency or cell phone number for contacting personnel on the boat; and
- type of watercraft, if applicable.

For this protocol, there will be no designated individual on land (Designated Office Staff or DOS) to coordinate trip completion check-ins. In the event of an emergency, the Boat Captain will use the emergency band on the marine radio to call for help. If the emergency occurs on land, the monitoring staff must contact the Boat Captain by cell phone to obtain emergency assistance, or a park radio can be used to obtain emergency services. In the event of a boat-based emergency where the Boat Captain is compromised, another individual should attempt to radio for help on the marine radio, or use a cell phone or park radio to call for assistance.

## **Field Safety**

### ***Personal Gear***

Each person is responsible for ensuring she/he is wearing field appropriate clothing and footwear, such as long pants, a hat, and boots. Dress in layers as the temperature and wind can change dramatically out on the harbor. For example, warm clothing may be needed during boat rides to the island sites, but once at the site, the weather may be very different. Most people are okay wearing the same shoes or boots for both boat and land surveys. Proper footwear will provide adequate ankle support and traction on both the wet metal deck of the boat as well as the variable natural surfaces encountered on the islands (slippery rocks, sand, uneven terrain). Depending on the weather, rain gear or warm clothing should be taken into the field and it is recommended that any extra clothing be kept in a water proof bag. Staff should take care to avoid overexposure to the sun by wearing sunscreen and/or protective clothing. In addition to providing protection from the elements long-sleeved shirts and pants are also effective at reducing the threats of biting insects and exposure to chemical or physical irritants (e.g. poison ivy, thorns).

Everyone should always carry ample water (2-3 liters) and food when working in the field. Dehydration is a serious condition that can lead to more serious conditions if untreated, and must be avoided. It is important to drink liquid frequently to maintain hydration on a warm day, even if you don't feel thirsty.

More information on 'what to wear' and 'what to bring' is available in the Boston Harbor Islands Volunteer Training Guide for Coastal Breeding Birds (Appendix A of the Coastal Breeding Birds Protocol; <https://irma.nps.gov/App/Reference/Profile?code=2191670>)

## SOP 1 – Safety

### ***Pre-trip Safety Briefings***

Each trip will begin with a safety briefing by the Lead Scientist and Boat Captain. The Boat Captain is responsible for reviewing her/his expectations for boat safety (see next section). The Lead Scientist will review the trip plan with Monitoring Personnel and highlight any potential hazards likely to be encountered that day (weather, poison ivy, etc.). Park Staff should also voice any trip specific safety concerns at this time. The BOHA volunteer coordinator is responsible for making sure all participants have a current, signed Acknowledgement of Safety Training form (Appendix S1.F) and Volunteer Agreement on file with the park prior to boarding the boat. Before leaving the launch, a quick survey should be undertaken to determine which participants are carrying cell phones.

### ***Boat Safety***

Boats are an integral part of coastal bird monitoring. Any boat used for this protocol meets or exceeds all requirements of the U.S. Coast Guard and will be piloted by a state-licensed captain. Follow all instructions from the captain to ensure your safety. Immediately upon boarding the boat and before it has left the dock, the captain will brief the Monitoring Personnel on boat safety. The briefing should include location of personal flotation devices (PFDs), man overboard (MOB) procedures, and location of fire extinguishers.

While on the boat, staff should remain vigilant to their surroundings and to potential hazards above, on, and below the water. Communicate your concerns to the captain immediately. Wet conditions, sudden changes in boat direction, strong winds, and rolling waves can all contribute to unstable footing in the boat. Know your limitations and do not exceed them (e.g. motion sickness can be greatly enhanced by the use of binoculars). Tell the Lead Scientist that you would like to take a break or switch to recording data if you feel unwell or unstable.

Waves are a significant marine threat, even on relatively calm days. Large waves tend to arrive in sets, or groups, but rogue waves or wakes from large boats can make footing suddenly unstable in a boat. Be particularly vigilant of the surf conditions and tide level when boarding or disembarking the boat.

### ***Weather***

Weather conditions in the eastern U.S. can be hazardous and can change quickly. Monitoring Personnel are responsible for planning their day according to the local weather forecast and for being aware of their surroundings and changing conditions. It will be the decision of the Lead Scientist and/or the Boat Captain whether or not to cancel a trip or cut it short based on weather. The Lead Scientist bears the responsibility of contacting the DOS to communicate any weather related change in plans or cancellations.

### **Thunderstorms**

Storms that produce strong winds and lightning are dangerous and should be avoided in the field. It is the Boat Captain's responsibility to monitor the weather and get the crew to a landing (temporary or the main dock) in the case of an impending thunderstorm. If caught in a lightning storm on land, personnel should seek shelter in a building or car as soon as possible. If no shelter is available, spread out and move to an open space. Squat low to the ground on the balls of your feet with your hands on your knees (do NOT lie flat on the ground). Avoid high elevations, conductive materials, and tall structures such as trees or telephone poles. If you are in the open and feel your hair stand on

## SOP 1 – Safety

end (indicating lightning is about to strike), immediately make yourself the smallest target possible and minimize contact with the ground.

**NOTICE!** *A person struck by lightning and who is without a pulse can often be revived by prompt administration of CPR. If they have a pulse but are not breathing, then “rescue breathing” should be applied to the victim.*

### Excessive Heat and Sun

Over exposure to heat and sun can cause dehydration, heat exhaustion, or heat stroke. All are serious conditions that can be life threatening, and should be avoided. When working in hot weather, be sure to drink plenty of water and eat foods that can replace electrolytes. Wear loose and light colored clothing, including a hat to block the sun’s rays. It may help to shift the field schedule to avoid working outside during the hottest part of the day.

**NOTICE!** *Signs of heat stroke include hot, red or spotted (usually dry) skin, and the sufferer may be mentally confused, delirious, having convulsions, or unconscious. If heat stroke is suspected, seek immediate medical attention!*

### Poor Air Quality

Summer ozone and particulate matter levels occasionally exceed federal health standards. Young children, seniors, and those suffering from asthma, chronic bronchitis, chronic obstructive pulmonary disease or heart problems are especially sensitive to poor air quality and should minimize outdoor activity when poor air quality warnings are posted. The risks of occasional exposure to ozone and fine particulate matter are minimal for healthy individuals.

When poor air quality warnings occur, it is advisable to avoid overly strenuous activity during the hottest part of the day (pollution levels tend to be lowest early in the morning). To check local air quality forecasts, or learn more about health risks of air pollution, visit the AIRNow intergovernmental agency website: <http://www.airnow.gov/>.

### **Teamwork**

Nobody may work by themselves when conducting coastal bird monitoring, no matter how experienced they are. When conducting land-based island surveys, all Monitoring Personnel must be in visual contact with at least one other person. If the field crew separates into multiple teams, the teams must periodically check in with each other regarding the status of sampling and where on the site they will be located. Emergency gear (e.g. first aid kit) must be placed in a central location above the tide line that is known to all members of the crew.

Individual crew members should engage in self-monitoring and share health concerns with Park Staff or the Lead Scientist as soon as they are discovered. If you do not feel quite right, you do NOT want to be on a remote island in case it gets worse. Many volunteers think that it will make them look bad, or affect their future service to call a trip short due to health concerns, but it is just the opposite. Volunteers that don’t communicate their health concerns put their team in danger.

### **Slip, Trip, Fall Prevention**

Uneven terrain, slippery surfaces, dense brush, and fatigue are all hazards that could result in a slip, trip, or fall. The boarding or disembarking from the boat (both at the dock and onto the islands) can

## SOP 1 – Safety

be particularly hazardous. The following guidelines must be obeyed by Monitoring Personnel to avoid injury from slips, trips, or falls:

- Always wear appropriate footwear.
- Pay attention to where you are going, and remain alert of potential hazards.
- When boarding or disembarking from the boat always keep at least one hand free, and always test your footing before putting your full weight down. Walk at an appropriate pace and adjust pace for changes in terrain (e.g., slow down and take smaller steps on slippery surfaces).
- When hiking long distances, take breaks to avoid fatigue.
- When navigating to an off-trail location, choose the safest route (this may not be the shortest route).
- Avoid excessively steep terrain and sudden drop-offs.
- Always be careful when navigating over piles of scree, and alert others of loose footing or sliding debris.

### ***Proper use of Backpacks***

Monitoring Personnel may find it useful to carry a small backpack to keep their hands free when monitoring instruments (e.g. binoculars, Trimble Juno hand-held computer) are not in use. Backpacks are also useful for keeping safety items, sunscreen, water, snacks, and clothing layers nearby at all times. It is important for everyone to understand appropriate ways to pack and carry a backpack. Follow these guidelines:

- Use a sturdy field pack sized appropriately for the task with which you are going to use it.
- Pack heavy items in the center of the pack and close to your back.
- Make sure weight is evenly distributed from side to side.
- Once equipment is packed, tighten the compression straps to minimize movement inside the pack during travel.
- Always carry a pack with both shoulder straps and with the hip belt and chest straps secured.
- Keep your pack organized, and only carry the necessary equipment, food, and water to reduce weight.

### ***Carrying Other Gear***

Some of the more frequently used gear will have to be hand carried (e.g. Juno Trimble, binoculars, camera). When carrying something, keep one hand free - both for balance and so that the item can be shifted between hands. Remember to slow down and pay attention to your footing.

### ***Airborne Pathogens in Coastal Bird Colonies***

Island sites supporting high-density nesting of colonial nesting birds may present some risk for Monitoring Personnel who enter these areas. When disturbed (e.g. wind or trampling), pathogens that may be present in bird droppings or the excreta rich soil can become airborne as fine aerosols and infectious to humans via inhalation. The bacterium *Chlamydia psittaci* may be found in bird droppings and can cause severe pneumonia in humans. The highly publicized H5N1 virus that

## SOP 1 – Safety

causes avian flu can also be excreted into feces, although this virus has yet to be found on the North American continent. The excreta rich soil may also harbor fungi that could be a concern for inhalation, such as *Histoplasma* and *Cryptococcus*. While the risk of exposure to such disease agents is likely low, Monitoring Personnel should be aware of this potential and take measures to minimize risk, particularly in high-density nesting areas where disturbance could increase aerosolizing contaminated material. For the most recent information available on the risks of the pathogens mentioned here please visit the Centers for Disease Control and Prevention website at <http://www.cdc.gov/>

Certain protective measures will reduce the risk of exposure to airborne infectious diseases. Avoid areas where feces accumulation is high. Survey colonies from a distance whenever possible, thus reducing disturbance to eggs and nestlings as well as human exposure to pathogens. If it is necessary to enter the colony, disturbance to the environment should be minimized to prevent aerosolizing any disease agent present. Lastly, field workers may choose to wear personal protective clothing and respirators. Handling of feathers, eggs, and other contaminated material should be avoided.

### ***Mosquitoes and West Nile Virus (WNV)***

West Nile virus is North America's most recent experience with a mosquito-borne disease. First detected in the northeastern U.S. in 1999, WNV has been detected in the mosquitoes of the Boston area annually ever since. Birds are the natural reservoir host and serve in the amplification of the virus via a mosquito-bird-mosquito epizootic transmission cycle, while humans (and other mammals) are incidental, dead-end hosts. The main route of human infection is through the bite of an infected mosquito. Although many people are bitten by mosquitoes that carry West Nile virus, most do not know they've been exposed and few develop severe disease or even notice any symptoms at all. For the most up-to-date information on symptoms, testing, and treatment of West Nile virus please visit the Centers for Disease Control and Prevention website at <http://www.cdc.gov/ncidod/dvbid/westnile/>

Engaging in the following personal protective measures can greatly reduce your exposure to mosquito-borne diseases, like WNV:

- When possible avoid outdoor activity during dawn and dusk when most mosquitoes are most active.
- Wear long-sleeved shirts and long pants whenever outdoors.
- Spray clothes with insect repellent. Repellents with 10% to 35% DEET (N, N-diethyl-meta-toluamide) will provide adequate protection under most conditions.

### ***Deer ticks and Lyme Disease***

Several species of ticks are commonly encountered in eastern U.S. parks while working in the field. This includes the deer tick (*Ixodes scapularis*), which is a known vector of Lyme disease and Ehrlichiosis. Although ticks have not been observed on most of the islands visited for this protocol, it is possible that ticks could be present, especially on inner islands such as Sarah, Peddocks, and Thompson. To reduce their exposure to tick bites, Monitoring Personnel should consider the following precautions:

## SOP 1 – Safety

- Clothes treated with permethrin have been found to be fairly effective tick repellent. Carefully follow the application instructions on the spray bottles to ensure your safety. The repellent will remain active for several weeks and through several washings.
- Tuck pants in socks and tuck in shirts. Wearing long sleeves and gaiters has been found to help.
- Check clothes and skin for ticks at the end of every field day. Ticks typically need to be embedded for at least 24 hours for disease transmission to occur; therefore, the earlier ticks are found and removed, the lower your chances are of acquiring a tick-borne illness.
- If you find a tick that is already embedded, use fine-tipped tweezers to firmly grasp the tick close to your skin. Slowly and steadily pull the tick's body away from your skin. Be careful not to crush the tick's body to minimize the chances of it regurgitating fluids into the wound. Clean the bite area once the tick is removed with soap and water.
- Keep an eye out for any early symptoms of tick borne diseases. Symptoms may include a bull's eye rash around the tick bite (doesn't always occur), tingling or numbness in extremities, a spotted rash on extremities, bad headaches, high fever, joint aches, stiff neck, fatigue, or swollen glands. If you develop a combination of these symptoms soon after a tick bite, seek medical attention.
- If you start to notice symptoms of Lyme disease, file a workers compensation claim as soon as possible.

Additional information on this topic can be found on the Centers for Disease Control and Prevention (CDC) website: <http://www.cdc.gov/Lyme/>

### ***Poisonous Plants and Animals***

Both for personal safety and protection of park resources, it is never advisable for Monitoring Personnel to eat wild plants while working in a National Park regardless of their confidence in plant identification. Keep a safe distance from wildlife. See the JSA (Appendix S1.D) for appropriate actions to mitigate the plant and animal risks listed here.

#### Poison Ivy

Poison ivy (*Toxicodendron* spp.) is present at BOHA and can be very abundant in localized areas. Monitoring Personnel must learn how to recognize this plant. When working in areas with poison ivy, it is advisable to take precautions to avoid skin contact with any part of the poison ivy plant.

#### Bird Attacks

Coastal birds can become particularly aggressive to intruders when defending a territory or nest – even to the extent of striking or defecating on people. When entering a colony, observers should remain aware of their surroundings, note the disposition of adults, and be mentally prepared to be harassed by protective adults from the air. Wearing a hat can greatly reduce the risk of a bird causing an injury to any observers.

#### Bees, Wasps, and Yellow Jackets

Bees, wasps, and yellow jackets could be encountered while traveling to monitoring sites, but are not a significant risk to most people. However, because of the remote nature of many of the survey sites, allergic reactions to stinging insects can pose a significant risk to people predisposed to them. Prior

## SOP 1 – Safety

to participating in a survey it is recommended that anyone allergic to insect stings communicate the severity of their allergy to Park Staff.

### Contact Information

See Appendix S1.A and S1.B for current emergency and non-emergency contact information.

### Literature Cited

American Lyme Disease Foundation. 2000. Tick ID Card. Tim Peters and Company Inc., Peapack, New Jersey.

Cass, W. 2007. Shenandoah National Park Long Term Ecological Monitoring System. SOP #2, version 1.2. U.S. Department of Interior, National Park Service, Shenandoah National Park, Luray, Virginia.

National Park Service. 2003. Public Health Information Sheet: West Nile Virus – General Information. Public Health Program, Washington, D.C.

Sonoran Desert Network, National Park Service. 2008. SODN Field Safety Plan. Version 6.00. U.S. Department of Interior, National Park Service, Sonoran Desert Network Office, Tucson, Arizona.

### Revision History Log

Version #	Revision Date	Author	Changes Made	Reason for Change
1.00	3/2012	A. Kozlowski	Based on Safety SOP v2.01 in the NETN Rocky Intertidal protocol	Original
1.10	3/2012	A. Kozlowski; M. Raczko; M. Albert	Refined response steps. Arranged document to have stand-alone appendices applicable to Volunteers.	Peer review
1.20	4/2012	A. Kozlowski; M. Raczko; M. Albert; C. Trocki; J. Karish	Added disease and pathogen risks to SOP body and JSA. Refined responsibilities of Boat Captain. Lengthened no response time before initiating a search. Reviewed GAR. Added basic radio info appendix.	Peer Review
1.21	5/2012	A. Kozlowski; M. Raczko; M. Albert;	Modified OWCP steps on where staff/volunteers can obtain CA-1.	Peer Review
1.22	3/2013	B. Mitchell	Remove requirement to have a DOS for check-ins. In the event of an emergency, monitoring staff must rely on the Boat Captain, cell phones, and park radios to obtain assistance. Update link to volunteer guide	Park staff felt the DOS requirement was not needed Web site update

## Appendix S1.A. Responding to an Incident

### **Incident Requiring an Emergency Response**

#### **Immediate Response**

1. **Call 9-1-1 and tell the operator:**

- a. “We need a marine response in Boston Harbor” and the island or nearest island to your location.
- b. Description of the vessel: “26 ft UMASS landing craft”.
- c. Ask 9-1-1 who is responding (info later passed to DCR staff). If 9-1-1 operator doesn’t know ask for a call-back.

**If cell phone reception is unavailable**, use a handheld NPS radio or use the boat’s marine radio to contact DCR State Base on Channel 10 (Appendix S1.C).

2. **Administer first aid** to the best of your knowledge, ability, and training. If appropriate, arrange for transporting the victim to the emergency room. Keep in mind that in many cases the Boat Captain is in the best position to help.
3. **Inform all team members** that an emergency is in progress and determine if emergency contacts of victim should be contacted.
4. For DCR owned islands: Call DCR by contacting the “State Base”: (617) 727-1188. Let them know the nature of the incident and who is responding.

#### **Secondary Response**

5. As soon as it is practical to do so, inform the Designated Office Staff (DOS). Be sure to communicate to the DOS any information provided by 9-1-1 dispatcher or responding agency so this information can be relayed to island owners.
6. If it has not already been done, the DOS will contact 1) any emergency contacts for the victim; 2) the island owner; 3) the NETN Program Manager.
7. For NPS employees and volunteers involved in an injury producing incident, begin by filling out a CA-1 within 48 hours of the accident and turning it in to your functional supervisor. The form can be obtained from the DOS or downloaded from the Department of Labor (<http://webapps.dol.gov/libraryforms/go-us-dol-form.asp?FormNumber=356>). For contractors and cooperators, follow your organization’s procedures for documenting accidents.

### **Incident Not Requiring an Emergency Response**

1. Administer first aid and seek medical attention if needed.
2. Contact the DOS and, if applicable, your functional supervisor as soon as practical after any incident. The DOS will contact the NETN Program Manager as soon as it is practical to do so.
3. Follow instructions in Step 7 of Incident Requiring and Emergency Response section above.

*NOTE: Never discard original paperwork related to workers compensation claims (including information from doctor's visits, and CA-1, CA-2, CA-16 or CA-17 forms).*

## Appendix S1.B. Islands Owners and their Contacts

**Note: For all emergencies, first contact 9-1-1 and report location including that you need a “Marine response in Boston Harbor.” See procedures for secondary response.**

**Table S1.B.1.** Agency specific contacts for Boston Harbor Islands National Recreation Area

<b>Organization</b>	<b>Contact</b>	<b>Phone</b>	<b>Radio Channel</b>
<b>National Park Service</b>			
DOS (primary)	BOHA - Mary Raczko	(617) 223-8637	
DOS (secondary)	BOHA - Marc Albert	(978) 360-0421	
General Contact	Lead Scientist - Carol Trocki	(401)952-2937	
	NETN - Brian Mitchell	(802) 457-3368 x37	
<b>U.S. Coast Guard (Little Brewster, The Graves)</b>			
Report an Emergency	Marine Emergency	(617) 223-3201	
General Contact	Sally Snowman	(781) 925-0932	
<b>DCR (Outer Islands except Little Brewster, Lovells, Peddocks, Grape, Bumpkin, Slate, Sheep)</b>			
Report an Emergency	State Base	(617) 727-1188	10
General Contact	Susan Kane	(781) 740-1605 x206	
		(617) 438-4194	
<b>Mass. Water Resources Authority (Deer)</b>			
General Contact	Tom Lindberg	(617) 660-7974	
<b>City of Boston (Long, Moon, Rainsford)</b>			
General Contact	Bryan Glascock	(617) 635-3850	
<b>Town of Hingham (Sarah)</b>			
General Contact	Hingham Police	(781) 749-1212	
	Clifford Prentiss	(781) 741-1445	
<b>Town of Winthrop (Snake)</b>			
General Contact	Winthrop Police	(617) 846-1212	
	Norman Hyett	(617) 909-0912	
<b>The Trustees of Reservations (Worlds End)</b>			
General Contact	Hingham Police	(781) 749-1212	
	Ed Pitcavage	(978) 356-4351 x4011	
<b>Thompson Island Outward Bound (Thompson)</b>			
General Contact	Jim Scully and Arthur Pearson	(617) 326-3900 x121	

SOP 1 – Safety

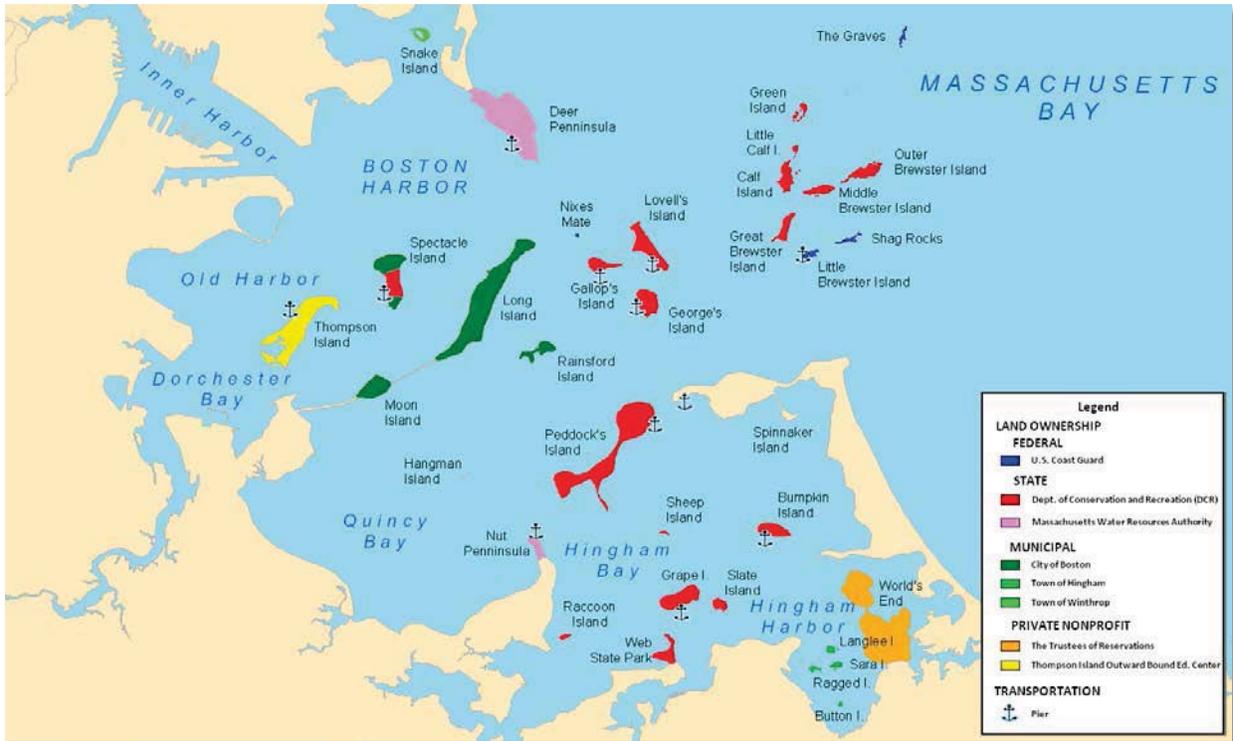


Figure S1.B.1: Map showing land ownership status of the island and associated lands in Boston Harbor.

## **Appendix S1.C. Basic Park Radio Operation**

### ***Basic Radio Information***

1. The model is a Motorola MTS-2000
2. The Top Buttons
  - a. Top left switch is power and Volume. Always turn volume up to loudest and adjust with each transmissions
  - b. Top center switch is Channel.
    - i. Emergency use Channel 10 DCR State Base (24 hrs).
    - ii. Island rangers use Channel 14 and Channel 16.
  - c. Toggle switch: Always set to “A”
  - d. Menu Screen: should say “DCR 10” when on Channel 10.
3. The left side buttons
  - a. Press the large button and hold as long as you are speaking to transmit
  - b. Top blue button is for display light
  - c. Middle button means nothing
  - d. Last (third) small button is scan. If you are hearing many transmissions from other areas, chances are this has been pressed. Press to remove scan

### ***Standard Transmission Procedures***

1. Speaker announces own call sign first, then states the call sign of the person needed. Call sign for the bird monitoring program is NPS Bird.
  - a. example - “NPS Bird to State Base” or “NPS bird to Georges Island”.
2. Call receiver states that they heard and understand the transmission. They could say “NPS Bird copies that”, “That is received”, “understood”, or anything to that effect.

### ***Emergency Procedure***

1. Choose Channel 10 to contact DCR State Base.
2. Announce call “NPS Bird to State Base”
3. State Base will respond
4. Announce conditions of emergency and location / request assistance
  - a. example – “Medical Emergency on Great Brewster Island, need assistance.”
5. Respond to questions of State Base in a calm, succinct manner.
6. State Base will arrange for emergency response and provide instructions.

## Appendix S1.D. Job Safety Analysis

<p><b>JOB SAFETY ANALYSIS:</b> Coastal Breeding Bird Field Work, including boat travel to and from island sites</p>	<p><b>JOB TITLE:</b> Coastal Bird Monitoring Crew Members</p> <p><b>DEPARTMENT:</b> Northeast Temperate Network</p> <p><b>ANALYSIS BY:</b> Adam Kozlowski, NETN Data Manager</p>	<p><input checked="" type="checkbox"/> <b>NEW</b></p> <p><input type="checkbox"/> <b>REVISED</b></p> <p><input checked="" type="checkbox"/> <b>REVIEWED</b> John Karish, NER I&amp;M Program Manager</p>
<p><b>Required and/or Recommended Personal Protective Equipment:</b> Required: Two modes of communication (i.e., radio and cell), life vests, first aid kit. Recommended as appropriate: rain gear, condition-appropriate footwear and clothing, hat, dry change of clothes, sufficient food and water.</p>		

<u>Tasks</u>	<u>Potential Hazards</u>	<u>Recommended Action or Procedure</u>
Planning and Communication	Not being prepared and following plan/itinerary. Communication breakdowns.	<ul style="list-style-type: none"> <li>Plan ahead. Know where you and each crew member will be going, particular hazards associated with travel routes, and sites to be visited that day. Check expected weather, tide, and surf conditions for day and sites to be visited.</li> <li>Conduct a pre-trip briefing when all team members participating that day are assembled. Solicit input from team members on any personal concerns or limitation they might have regarding the day's itinerary.</li> <li>Understand itinerary of planned trip and follow carefully. Coordinate drop-off and pick-up times (or return times) and locations precisely.</li> <li>Check in with Designated Office Staff (DOS) prior to field work with a trip plan, and after field work to confirm crew safety. If return will be delayed, contact DOS before agreed-upon check-in time to establish a new check-in time. Always carry two methods of communication with full charges.</li> </ul>
Emergency Preparedness	Not knowing emergency procedures. Not having emergency supplies.	<ul style="list-style-type: none"> <li>Know who to contact and how to reach them (including how to operate communication equipment) in the event of a life-threatening or non-life-threatening emergency.</li> <li>Bring a well-maintained first aid kit on each trip. If teams split up in pairs, place safety equipment at a central location at the monitoring site that is known to all crew members and that is above the tide line.</li> </ul>
Teamwork	Lack of awareness of other team members leading to delayed incident response	<ul style="list-style-type: none"> <li>Promote a cohesive team atmosphere that values input and/self critique.</li> <li>Make sure that no crew member works alone and out of sight of other crew members; i.e., work in groups of two at a minimum.</li> <li>If crew splits up into multiple pairs, the pairs should periodically check in with each other.</li> </ul>

SOP 1 – Safety

<u>Tasks</u>	<u>Potential Hazards</u>	<u>Recommended Action or Procedure</u>
Boarding and disembarking the landing craft	Falling or tripping due to extremely slick, uneven, and unstable surfaces	<ul style="list-style-type: none"> <li>• Obey all instructions from the Boat Captain and only board or disembark when he has directed it is safe to do so.</li> <li>• Always keep your center of gravity as low as possible and always keep at least one hand free and be prepared to lose your footing.</li> <li>• Offer and accept help from others when it is needed. Work as a team to safely transition from land to the boat or vice versa.</li> <li>• Pass gear between people on boat and land rather than carrying the gear onto the boat.</li> </ul>
Riding in landing craft or other small boat	Boating accident; motion sickness; injuries from crossing waves/wakes; falling overboard into the ocean; exposure to wind, sun, and rain	<ul style="list-style-type: none"> <li>• Obey all instructions from the Boat Captain.</li> <li>• Make sure you are familiar with man-overboard (MOB) procedures and location and use of safety equipment on boat (e.g. flotation devices, rescue pole).</li> <li>• Stay aware of the boat's surroundings to watch for hazards that may cause an unexpected change in the boat's direction (boat wakes, buoys, obstacles). Communicate concerns to the captain and other members of the team promptly.</li> <li>• Move carefully and deliberately, and ensure you have solid footing before using both hands for any task.</li> <li>• When the boat is in motion, stay flexible and try to move with the boat motion; avoid bracing yourself rigidly.</li> <li>• Bring a jacket, even on warm days, since it is cooler on the water.</li> <li>• Check the weather and be prepared with hat, sunscreen, and rain gear.</li> </ul>
General foot travel	Falling or tripping due to wet areas, poor footing, uneven terrain, loose/rolling rocks.	<ul style="list-style-type: none"> <li>• Use caution at all times. Walk carefully, watching footing.</li> <li>• Wear appropriate boots for conditions. Stay aware of your feet. Address blisters and hot spots promptly.</li> <li>• When walking on a steep slope, lean upslope. Ensure that stems and vines are alive and can support your weight before relying on them.</li> <li>• Use extreme caution traversing wet rocks, streams, steep slopes or blowdown areas.</li> <li>• Know your limitations and don't exceed them.</li> </ul>
Walking through thick vegetation	Cut, scratched, or bruised by vegetation; eye or ear injuries	<ul style="list-style-type: none"> <li>• Shield your eyes and face with your hands, glasses, or hat when moving through tall thick brush. Keep your head and eyes pointed somewhat downward so your head hits obstacles before your eyes.</li> <li>• Wear pants and long-sleeved shirts to protect bare skin.</li> <li>• Look before you grab vegetation to avoid grasping thorny stems.</li> <li>• Do not follow closely behind other people to avoid having branches snap back and hit you.</li> </ul>

SOP 1 – Safety

<u>Tasks</u>	<u>Potential Hazards</u>	<u>Recommended Action or Procedure</u>
Hazard trees	Being struck by falling trees or branches	<ul style="list-style-type: none"> <li>• Look up. Be alert for widow-makers, storm damaged trees with large broken limbs, and unstable standing dead trees.</li> <li>• Do not spend extended time in an area with hazard trees.</li> </ul>
Carrying a pack and other equipment	Injuries from improper packing, adjustment, and lifting of backpacks. Injuries from improper carrying of gear	<ul style="list-style-type: none"> <li>• Learn how to properly pack, adjust, lift, and carry a pack.</li> <li>• When hand-carrying gear, keep one hand free.</li> </ul>
Working in heat, humidity, or cold	Heat exhaustion, sunburn, dehydration, hypothermia	<ul style="list-style-type: none"> <li>• Evaluate the weather forecast each morning and plan field work accordingly.</li> <li>• Carry and drink plenty of water.</li> <li>• Take extra breaks during extreme weather events. Adjust the work routine to minimize exposure to extreme heat and humidity.</li> <li>• Take adequate garments for all possible weather conditions. Choose clothing that will keep you warm even if it gets wet.</li> </ul>
Working outdoors during storms	Being struck by falling trees or branches; being struck by lightning	<ul style="list-style-type: none"> <li>• Listen/listen to the weather forecast each morning.</li> <li>• Plan or adjust field work to avoid being out in thunderstorms.</li> <li>• Postpone work if safety will be compromised by storm conditions. If you see or hear a thunderstorm coming, retreat from high ground and exposed areas. Go inside a sturdy building or vehicle, if possible.</li> <li>• If you can't get inside and if you feel your hair stand on end, lightning is about to strike.</li> <li>• Make yourself the smallest target possible and minimize contact with the ground.</li> <li>• Crouch down on your pack on the balls of your feet and keep your feet close together. Place your hands on your knees and lower your head.</li> <li>• During a thunderstorm, members of the crew should stay separated by at least ten feet.</li> </ul>

SOP 1 – Safety

<u>Tasks</u>	<u>Potential Hazards</u>	<u>Recommended Action or Procedure</u>
Working in and around coastal bird colonies	Attacks by adult birds; exposure to pathogens in guano	<ul style="list-style-type: none"> <li>• Survey colonies from a distance whenever possible, thus reducing disturbance to eggs and nestlings as well as exposure of surveyors to potential pathogens and aggressive adult birds.</li> <li>• When entering a colony remain aware of your surroundings as well as the location and demeanor of adults to reduce surprises.</li> <li>• Wearing a hat can protect against being struck or defecated upon.</li> <li>• When traveling through a colony avoid areas where feces accumulation is high.</li> <li>• Make every attempt to minimize disturbance to guano deposits and the soil to reduce the aerosolizing any disease agent that may be present.</li> <li>• Do not handle eggs, feathers, or other potentially contaminated material.</li> <li>• Field workers may choose to wear personal protective clothing and respirators.</li> </ul>
Poisonous plants, especially poison ivy	Contamination/toxicity from contact with poisonous plants	<ul style="list-style-type: none"> <li>• Learn to identify poison ivy in its many growth forms.</li> <li>• Wear long sleeves and pants.</li> <li>• Be aware of poison ivy and avoid coming in direct contact with it.</li> <li>• Thoroughly wash hands, equipment, and clothes with Tecnu or similar specialized soap if you come into contact with poison ivy.</li> </ul>
Bee, wasp, or yellow-jacket stings	Multiple stings from disturbing or stepping into nest areas	<ul style="list-style-type: none"> <li>• Bees, wasps, or yellow-jackets may be encountered while traveling to monitoring sites.</li> <li>• Be alert to hives in brush, ground holes, or hollow logs. Watch for insects traveling in and out of one location.</li> <li>• If you or anyone you are working with is known to have allergic reactions to be stings, tell the rest of the crew and your functional supervisor. Make sure you carry emergency medication with you at all times and that your co-workers know where it is kept.</li> <li>• Wear long sleeve shirts and trousers, tuck in shirt. Bright colors and metal objects may attract bees or wasps.</li> <li>• If you are stung, a cold compress may bring relief.</li> <li>• If stinger is left behind, scrape it off of skin. Do not use tweezers as this squeezes the venom sack, worsening the injury.</li> <li>• If the victim develops hives, asthmatic breathing, tissue swelling or a drop in blood pressure, seek medical help immediately.</li> </ul>

## SOP 1 – Safety

<u>Tasks</u>	<u>Potential Hazards</u>	<u>Recommended Action or Procedure</u>
Bites from mosquitoes, black flies, and other insects	Itchy reactions to multiple bites Exposure to West Nile virus (WNV)	<ul style="list-style-type: none"> <li>• Wear long sleeves and pants.</li> <li>• Avoid sitting on the ground or on logs, especially in dry sunny grassy areas.</li> <li>• Use insect repellants. Do not apply Permethrin, Permanone, or greater than 30% DEET directly to skin, only to clothing.</li> <li>• Carry after-bite medication to reduce skin irritation.</li> </ul>
Ticks	Contracting diseases transmitted from ticks	<ul style="list-style-type: none"> <li>• Use tick avoidance precautions, including pre-treating clothing with Permethrin, tucking pants into socks and shirt into pants when hiking to and from intertidal sites.</li> <li>• Wear clothes (including pants and long-sleeved shirts) that are light colored and check for ticks on clothing after traveling through vegetation.</li> <li>• Conduct a thorough tick check every evening after completing field work.</li> <li>• Know how to identify tick life forms, and the signs &amp; symptoms of tick-borne diseases.</li> </ul>

## **Appendix S1.E. Green-Amber-Red Risk Assessment**

This appendix describes application of the GREEN-AMBER-RED (GAR) Risk Assessment Model, as outlined in the NPS Operational Leadership Student Manual (Version 2; July 2011), to the NETN Coastal Breeding Bird Monitoring Protocol. This GAR was written by the NETN Program Manager (Brian Mitchell) adopted for this protocol by the NETN Data Manager (Adam Kozlowski) on 9 March 2012 and approved by the NPS Northeast Region I&M Program Manager (John Karish) on 25 April 2012.

The GAR model allows for a general assessment of a task or operation and generates communication concerning the risks of an activity (in this case, conducting the field-based activities of the NETN Coastal Breeding Bird Monitoring Protocol). The most important part of the process is the team discussions leading to an understanding of the risks and how they will be managed.

The GAR is a seven step process. Each step is defined and explained in the context of the NETN Coastal Breeding Bird Monitoring Protocol below.

### **Step 1: Define the Mission or Task**

The NETN Coastal Breeding Bird Monitoring protocol's field-based activities include: ground-based nest counts and boat-based counts of nesting pairs and individuals. A 26-foot landing craft is used to access the islands to conduct ground-based nest counts and to conduct the boat-based counts.

Monitoring personnel work as part of a team when on the boat and may work in multiple pairs when conducting ground-based surveys. The activity is conducted on remote islands in the Boston Harbor National Recreation Area away from roads and trails. Island landings, where personnel and gear need to traverse the intertidal zone, have a number of innate safety hazards.

### **Step 2: Define the Threats**

The threats/hazards for this activity along with mitigation measures are described in the associated Job Safety Analysis (Appendix S1.D). Of specific concern is that monitoring personnel will regularly be transitioning through uneven and extremely slippery surfaces immediately adjacent to the ocean and negotiating rugged, uneven landscapes in remote areas. A fatality through drowning or a severe slip and fall is possible and is the most significant risk encountered when conducting this activity.

### **Step 3: Assess Risk and Assign a Numerical Value**

The numerical ranks (Table S1.E.1) were assigned by the NETN Data Manager, the NPS lead scientist for the NETN Coastal Breeding Bird Monitoring Protocol, and the BOHA Stewardship Program Director. It should be noted that at the time final numerical values were assigned (March 16, 2012) the protocol had been in development for several years and considerable time and effort had already gone into evaluating and mitigating risks.

The activity risk can be visualized using the colors of a traffic light. If the total risk value falls in the GREEN ZONE (1-35), risk is rated as low. If the total risk value falls in the AMBER ZONE (36-60), risk is moderate and you should consider adopting procedures to minimize the risk. If the total value falls in the RED ZONE (61-80), you should implement measures to reduce the risk prior to starting the event.

**Appendix S1.E. Green-Amber-Red Risk Assessment (continued).**

The ability to assign numerical values or “color codes” to hazards using the GAR Model is not the most important part of risk assessment. What are critical to this step are the team discussions leading to an understanding of the risks and how they will be managed.

**Table S1.E.1.** NETN Coastal Breeding Bird Monitoring Protocol assigned risk codes of 0 (For No Risk) through 10 (For Maximum Risk) to each of the eight Green-Amber-Red Risk Assessment elements.

<b>Element</b>	<b>Rating</b>
Supervision	2
Planning	3
Communication	4
Contingency Resources	5
Team Selection	4
Team Fitness	5
Environment	6
Event/Evolution Complexity	5
<b>Total Risk Score</b>	<b>34</b>

**Step 4: Identify Risk Control Options**

***Supervision***

The NETN Coastal Breeding Bird Monitoring Protocol clearly identifies personnel, roles and responsibilities, and a chain of command. A functional supervisor (the contracted Lead Scientist) is always on the boat and on site with 2-4 volunteers. Nobody is allowed to work solo, everyone must remain in sight of at least one other team member at all times, and there are periodic check-ins between teams. A licensed captain always drives the boat and is responsible for boat safety. A member of BOHA park staff is responsible for carrying multiple communication devices (usually radio and cell phone), monitoring the volunteers for signs of distress, and responding to emergencies. The supervisor has many tasks to accomplish, so is not always focusing only on supervision. A score of 2 was assigned due to layered on-site supervision and the fact that the team is not large, and work is conducted in pairs with regular check-ins.

***Planning***

The NETN Coastal Breeding Bird Monitoring Protocol includes numerous SOPs that explain hiring, training, personal safety, emergency communication (equipment and contacts), and appropriate field activities. Crew members are required to review these materials during pre-season training and receive pre-trip safety briefings before outing. A Job Safety Analysis has been developed which all crew members must read and sign. Due to this advance planning, written documentation, and training procedures, a low score (3) was assigned.

***Communication***

Routine and emergency communication equipment and procedures are explained in the relevant SOPs. This includes coordination with park natural resource managers, rangers, and dispatch. Access to duplicate means of communication (radios and cell phones) is available on all trips and carried by a trained member of the BOHA park staff. Due to this advance planning, written documentation, and training procedures, a low score (4) was assigned.

***Contingency Resources***

Contingency resources include communication equipment and procedures that explicitly involve park rangers, park dispatch, and 9-1-1. Crew members always have at least two modes of

**Appendix S1.E. Green-Amber-Red Risk Assessment (continued).**

communication (park radio and cell). The crew is instructed to place all safety gear (first aid kit, water) at a central location (the exception would be Park Staff radio). Notification of emergency services should happen within minutes of an incident, but emergency services may not be able to reach the crew quickly due to the remoteness of some sites. A score of 5 was assigned instead of a lower score because of the potential delay before emergency services could reach the crew.

***Team Selection***

The monitoring protocol clearly identifies the essential skills and abilities required to execute this protocol in a competent manner. Training occurs prior to when field work is conducted allowing time to assess individual and team weaknesses. A congenial team atmosphere values/encourages input from its members. The protocol benefits from many return Volunteers who ‘know the ropes’. A score of 4 was assigned (instead of a lower score) because at least some crew members may have limited experience, and may not have advance training in the particular safety issues that can arise. While some of these skills can be worked on during Monitoring Personnel training, there is no substitute for experience.

***Team Fitness***

Team selection seeks to ensure an overall high level of initial team fitness. Monitoring Personnel are only in the field for approximately six hours per day (not including drive times). Sampling always occurs during daylight hours. Work is a mixture of stationary and walking-based tasks and is not considered overly strenuous. A score of 5 was assigned because Volunteers are largely an older group, but skilled in the outdoors, often with many years experience. Monitoring Personnel must be diligent about adequate rest and nourishment to ensure that fatigue does not become a factor.

***Environment***

Environment was assigned a higher score (6) primarily because of the inherent dangers associated with traveling to and from islands in a small boat, loading and unloading the boat in the intertidal environment, the low temperature of the water, and the off-trail hiking conditions on the islands. Slips and falls combined with the remote nature of the sites are the primary safety concern. Poison ivy is abundant on several of the islands where volunteers will be working. Lack of shade on the open water increases the chance of personnel’s overexposure to the sun. Slow emergency response times typical to the islands also raise the concern of dealing with sudden, unpredictable changes in the health of Volunteers or staff. Helipads are available on several of the harbor’s islands and 9-1-1 responders and Park Staff are trained to navigate the complex emergency response jurisdictions. Careful attention is paid to the weather and trips will be cancelled at the discretion of the Lead Scientist and/or Boat Captain. Despite training, working in pairs, and having multiple modes of emergency communication, the possibility exists for a serious accident to occur.

***Incident Complexity***

Incident complexity was assigned a score of 5 mostly because the monitoring tasks require staff to divide their attention among aggression by territorial birds, avoiding stepping on nests, keeping counts of individuals for multiple species, use of binoculars, and/or using a handheld computer while traveling in a moving boat or moving through dense foliage on uneven terrain. Changes to the weather and seas are of some concern, but working in teams where every member’s input is valued helps mitigate that threat. Although individual Monitoring Personnel must use judgment and experience to respond appropriately, standardized operating procedures cover a high percentage of the activities and help staff manage the requirements made of them.

**Appendix S1.E.** Green-Amber-Red Risk Assessment (continued).

**Step 5: Evaluate Risk vs. Gain**

The score of this assessment (34) falls at the high end of the “green” zone, but still indicates a low risk activity. The NETN Program Manager has determined that the activity, if carried out in accordance with all SOPs, has an acceptable level of risk.

**Step 6: Execute Decision**

The decision made by the NETN Program Manager is to conduct the activity in accordance with NETN Coastal Breeding Bird Monitoring Protocol Standard Operating Procedures (SOPs).

**Step 7: Supervise – Watch for Change**

The NETN Program Manager continually solicits feedback from the Lead Scientist, NPS Staff, and Volunteers on safe execution of the protocol including risk control options not considered thus far.

## Appendix S1.F. Acknowledgement of Safety Training

I hereby attest that I have read in its entirety and understand the information provided to me in the Northeast Temperate Network’s Coastal Breeding Bird Monitoring Protocol Safety SOP Appendices, which includes the:

- Appendix S1.A: Responding to an Incident
- Appendix S1.B: Islands Owners and their Contacts
- Appendix S1.C: Basic Radio Information
- Appendix S1.D: Job Safety Analysis (JSA)
- Appendix S1.E: Green-Amber-Red Risk Assessment (GAR)

The information in these documents identify hazards of conducting field work required as a member of the NETN Coastal Breeding Bird monitoring team and document practices and behaviors to mitigate those hazards. I understand that part of my responsibilities as a member of the monitoring team is to practice these safety practices to the best of my ability.

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant Name