

The five foci for this study are:

- a. The maximum birds present before 9:00 am.
- b. Three point-in-time counts of the birds: beginning, middle, and end of survey.
- c. The number of active burrows.
- d. The type of fish delivered.
- e. Colony-wide response to a known or unknown event. (Disturbances.)

Pigeon Guillemot Study -- Protocol for 2020 season

1. The procedures and datasheet have been revised for 2020 to reflect changes in procedures. **RECYCLE** all 2019 data sheets.
2. Safety is our first priority. If you can't go with a partner, take a cell phone and/or be sure someone knows you are on the beach and when you're planning to return. Consider the tide before going out to make sure you won't get stuck or have to wade through water.
3. The earlier you can get to your colony the better chance of seeing more activity. Arrive at your site no later than 7:45 AM and wait 15 minutes prior to starting the survey in order to let the birds resume normal behavior. You may begin your survey anytime before 8:00 AM and be finished no later than 9:00 AM. You may conduct a survey any time after sunrise. It is expected that for each data sheet record you will sit quietly at your study area for exactly **one hour** and observe the activity. Volunteers surveying the same colony on the same day should coordinate their surveys to start at the same time to prevent interrupting other surveys. The settling period can be skipped when there are absolutely no PG present within visual range of the entire colony. Consult with your coordinator if unsure.
4. We ask that you visit your site at least **ten** times this season. One visit should fall during each week beginning the week of June 1st., ideally on the same day each week. However, when tides or schedule make it difficult to get out for a survey, you may adjust your timing. Be sure to space the surveys at least 3-4 days apart. Continue visiting your site for 10 consecutive weeks. If there are two consecutive weeks with no burrow activity, contact Anne and Terence about closing out the site. If activity is still observed, continue surveying the site until you reach two consecutive weeks with no activity.
5. Find a spot to sit still and observe quietly; this spot should be as far as possible from the bluff, but still within range to clearly observe the burrows and the birds on the water. Ideally you should be sitting off to the side. Never position yourself directly in front of the burrows, this will almost always guarantee no burrow activity.
6. Locate and identify the active/occupied burrows and number them on your site photo or sketch/doodle in the order that the burrow becomes active. Prenumbering can be confusing for the data validation team. Send a copy of the updated "site map" to Terence so that substitutes will know which ones are active.
7. A burrow is considered "active/occupied" when: You see a bird disappear into or emerge from the burrow. (A "ledge sit" is not valid, nor is fresh guano.) However, count a bird emerging from a burrow only if you did not see it first fly into the burrow, to prevent the same visit from being double counted. In other words, entry and exit should not be recorded as separate visits; only record one or the other.
8. For each active/occupied burrow, document the times of each activity observed. These will include **No Prey** (a burrow visit without prey), fish deliveries of **Gunnel, Sculpin,** or **Other/Unknown** (i.e. shiner perch or instances when the fish is not readily identifiable). Note

time for each activity. For burrows with multiple visits or fish deliveries, record all times in the same respective box.

9. **Guest Policy:** The survey coordinators carefully assign volunteers to colonies taking into account the number of volunteers needed to adequately cover the burrows. We expect all volunteers to attend a training so that the quality of our data remains high. A guest may accompany you on the survey provided that he/she remains quiet and does not interfere with the birds' activity. Guests may not serve as data collectors.
10. **If for any reason you must miss a week, or your plans change and you are not able to complete the study, contact your team lead immediately. For a planned vacation, please let your team lead know at least one week ahead of your absence so that a substitute can receive a site orientation if needed.**
11. **Substitute surveyors:** All substitutes must be trained and have received site orientation. Substitutes must be provided with a photo map or diagram marking active burrows. New volunteers shall be accompanied by an experienced volunteer until they have become proficient with survey protocols.
12. **Make a decision.** Question marks or number ranges are difficult to interpret. If you aren't sure what to record in a special situation, contact Terence or Anne for help while it's still fresh in your mind. Notes can also be helpful in this situation.
13. **Pet Policy:** No pets may accompany you on the beach. They will disturb the birds.
14. Either before or after your survey, walk under the burrows and look for dead chicks, egg shells, rejected prey, etc. Please record these observations and take photos. Leave these items where you found them. Contact us immediately if you find any seabirds washed up.
15. Review data sheets for completeness and clarity when you finish your survey.
16. Carry outreach brochures to share with interested or curious people you meet on the beach. Be courteous and answer questions, but refrain from engaging in extended conversations if you are in the middle of a survey.
17. Be respectful if crossing private property. Move quickly and quietly to the beach so as not to disturb property owners and neighbors.

Private Property and Site Access Protocol

1. Always notify landowners of your survey plans ahead of time so they know who is coming, on what date, and at what time unless you already have permission ahead of time or instructed otherwise.
2. When possible, carpool to the site or space out surveys across different survey times or multiple days to avoid overwhelming the site with vehicles.
3. Never park on any lawn, private property, or driveway unless the landowner/we (NRNC-coordination team) instructs you to. To avoid making ruts or getting stuck, do not park on soft surfaces when ground is soaking wet. Use landowner driveways only with landowner permission and without blocking access. When parking by the side of the road observe and provide access for mail vehicle, garbage trucks, fire hydrants, and other service and construction vehicles.
4. Be sure to inform substitute volunteers about areas to park.
5. Put laminated PIGU parking sign/label on the dash or under windshield wiper.

6. Go directly to the beach when passing through people's property and yards (to avoid appearance of casing property). When walking the beach, leave similar space between yourselves and people's property. Landowners are sensitive about potential theft. We encourage you to pack out any trash you find. Landowners will appreciate it and likely be happy to see you next time.
7. Carry info outreach sheets to share with interested or curious people you meet, and be courteous when you meet people while you are on the job. We want people to be supportive of this work.

Please remember that if we wish to continue doing surveys at sites, we need to be respectful of private property and maintain good relationships with property owners. We appreciate their hospitality!

Directions for filling out data sheet:

Section 1 -- Colony Wide Activity

Fill in the **Site Name, Survey Date, Data Recorder** and e-mail, **Names of Observers**.

Total volunteer time: This includes one hour of survey, settling in time prior to the survey, travel time for all volunteers. Also include data entry time. For surveys completed by teams with multiple people, it's helpful to specify individual volunteer times to account for the difference in travel times.

Survey Start time: Must be started by 08:00 with a 15 minute settling period prior to the start of the survey. Do not record the time of your settling period. So if you arrive at 07:45 then you would record 08:00 as your start time.

Tide in feet at start of survey: Consult tide charts or apps. Such as www.deepzoom.com

Incoming or Outgoing: Refers to tide; circle appropriate answer.

PIGU Counts:

- A) **Highest Count by 9:00:** As you conduct the survey, frequently count the birds *associated with your colony*. Include birds seen on the water, beach, and bluff. Record the largest count noted at *any* time during the survey, as long as it is before 9:00 AM.
- B) **Count at beginning:** After the birds have settled and you begin the survey count all the birds seen within the site boundary. Refer to your site photo map.
- C) **Count in middle:** 30 minutes into the survey take and record a second point count.
- D) **Count at end:** At the one hour mark take and record final point count.

Section 2 -- Burrow Activity

Record **Burrow Id** for each burrow where activity is observed. Use numbers instead of letters. Letters are **ONLY** for site ID.

For a visit to the burrow with **no prey**, mark the time in the box. Subsequent burrow visit times can be added separated by a comma in the same box.

Most fish delivered will be either **gunnels** or **sculpins**. Mark the times of each fish delivery in the appropriate box(es). If you can't identify the prey, record the time in the box marked **Other/Unknown**. (Identify the prey if possible. For example, if you see a perch, mark the time under "Other/Unknown" and write perch delivery at X time in the burrow notes. If it is not a perch, sculpin, or gunnel, record a description in the notes. If you aren't sure whether it was a sculpin or gunnel, note fish body shape).

For burrows with multiple burrow visits and/or fish deliveries, record all times under the same burrow ID and separate times by commas. Simultaneous visits or deliveries are recorded according to this protocol. All activities for one burrow are recorded in a single section.

Section 3 – Response to Disturbances

Occasionally disturbances will occur that cause the birds to fly away from the beach, vacate the burrows, or retreat offshore and away from the colony.

Record the time of the disturbance next to the listed cause. **Monitor the birds' colony-wide reaction** to the disturbance and select the approximate length of reaction. **NO** for no or minimal disturbance <2

minutes. **Small** for 2-10 minutes. **Medium** for 10-30 minutes, **Large** for 30 minutes or longer. If the disturbance extends to the end of the survey, mark “end”. Record any pertinent notes regarding the colony’s response.

Record survey data at the website: www.pigeonguillemotdata.org. as soon as possible after survey.

Please snail mail data sheets within one week of your survey. Send to:

Terence Lee
Nisqually Reach Nature Center
4949 D’Milluhr Dr. NE
Olympia, WA 98516

Alternatively, you may also scan and email completed data sheets to terencelee@nisquallyestuary.org

Please feel free to contact us with any questions or concerns.

For scheduling, reordering materials, and data recording or data entry, contact your regional coordinator:

Raelinda Boughton
raelinda.boughton@gmail.com
360-270-3080

Shannon Boldt
boldts@comcast.net
360-701-2820

Andy’s Marine Park (beach)
Beachcrest
Big Fish Trap
Burfoot
Butterball
Edgewater
Elizan
Walnut Rd
Mill Bight
Sandy Pt
Young’s Cove

Boat surveys
Amsterdam Bay
Andy’s Marine Park (boat)
Brisco Pt (boat & land)
Ketron
Lyle Pt (boat)
Zangle Cove

For all other inquiries, please contact Terence Lee (360-556-2738) or Anne Mills (360-888-9417)

Thank you for your time and effort given to this study. It is greatly appreciated.