Pigeon Guillemot Monitoring

Project lead Ed Bowlby speaking to assembled Port Williams volunteers, including Olympic Peninsula Audubon Society co-lead Bob Phreaner (foreground). Photo credit Silas Crews.

Project Reporting Period: 10/01/24 – 9/30/25

Grant number: SEANWS-2023-ClCoCD-00005

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistant agreement CE-01J31901-0 to the Puget Sound Partnership. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

1. Abstract

Pigeon guillemots (*Cepphus columba*) have been used as an indicator species of nearshore ecosystem health in the Salish Sea for many years. A dedicated monitoring effort was initiated on Whidbey Island in 2004, expanded to South Puget Sound in 2013, and a pilot project started in Clallam County in 2015. Beginning in 2016, Clallam County Marine Resources Committee (Clallam MRC) adopted this effort as one of its citizen scientist monitoring projects and has continued as such to this current year. This regional program is part of the Salish Sea Guillemot Network (http://www.pigeonguillemot.org/), which is part of the Puget Sound Ecosystem Monitoring Program's Marine Birds Workgroup. The project is also co-sponsored by the Olympic Peninsula Audubon Society (OPAS), with project lead Bob Phreaner.

This monitoring project consists of volunteer teams gathering weekly monitoring data at a designated group of pigeon guillemot colony sites through the summer season. Pigeon guillemots nest in bluffs beginning in early summer and deliver prey to their young in the burrows throughout summer. In 2025, 8 nesting colonies across 6 geographic areas were monitored by volunteer teams. This year, prey deliveries to young at some pigeon guillemot colonies extended into September. This is a well-established and successful project for the Clallam MRC, and pigeon guillemot monitoring efforts will continue in the 2026 season.

2. Project Goals

The goals of this project, as established in the 2024 Quality Assurance Project Plan, are:

- Goal 1: Expand the monitoring area in the Salish Sea.
    - The monitoring capacity for pigeon guillemots was historically low, with Washington Department of Fish and Wildlife (WDFW) seabird surveys unable to effectively monitor the birds due to winter timing. A pilot effort was established to monitor pigeon guillemots on Whidbey Island in 2004, and the Clallam MRC has aimed to expand this capacity into Clallam County since it established its pigeon guillemot project in 2016.
- Goal 2: Document pigeon guillemot breeding colonies in Clallam County beaches using established protocols that will provide data that is comparable across monitoring years and across study areas.
    - This goal primarily refers to the use of the protocol established by the Salish Sea Guillemot Network, and used regionally by multiple groups.

- Goal 3: Involve, educate, and train citizen scientists to monitor the guillemot breeding sites.
    - This is a core function of the project, as monitoring takes place weekly and is done entirely by volunteers.

None of these goals were altered during the course of the project in this reporting period.

3. Project Engagement

This project stands out as a successful long-term effort for the Clallam MRC thanks to MRC member champions Ed Bowlby and Mary Sue Brancato, strong partnerships with regional organizations such as OPAS, with Bob Phreaner as co-lead, and a large crew of volunteers. Volunteers that have stayed committed to this project year-over-year, finding enjoyment in watching the birds and interest in the long-term health of specific colonies, have been key to its success. The Salish Sea Guillemot Network provides online training and an organized protocol that enables the MRC project lead to train these volunteers and recruit new ones.

3.1. Partners/Organizations

- The Salish Sea Guillemot Network is a regional research group that coordinates the monitoring effort, establishes the shared protocol, and provides online training for both established and new volunteers each year.
- The Olympic Peninsula Audubon Society is the co-sponsor of this project along with the Clallam MRC. Bob Phreaner, the project co-lead from OPAS, works with MRC project lead Ed Bowlby to coordinate volunteers and sites. The Olympic Peninsula Audubon Society also assists with volunteer recruitment, through their website and network of birding enthusiasts.

3.2. Participants

36 volunteers participated as citizen science monitors of pigeon guillemot colonies in the 2025 monitoring season.

4. Project Methods/Actions

This monitoring project consists of volunteer teams gathering weekly monitoring data at a designated group of pigeon guillemot colony sites through the summer season. In 2025, 8 colonies across 6 geographic areas were monitored by volunteer teams.

Many volunteers returned for another season in 2024, while some were new recruits. To recruit volunteers, Clallam MRC posted information on this volunteer opportunity to their Facebook page and website. Olympic Peninsula Audubon Society also posted the recruitment information on their website. Volunteer training took place through an online webinar, which included the history of the program and explanations of the monitoring protocols and field data forms. New volunteers were teamed up with experienced monitors whenever possible, and some volunteers acted as substitutes when others were on vacation.

The field season began in June, and volunteers monitored their assigned colony weekly. Monitoring extended when prey deliveries to young guillemots were no longer observed in any burrows. The weekly monitoring session took place in the early morning for one hour, as close as possible to the same time and day as tides allowed. The standardized protocol (approved by WA Department of Ecology) was followed and data maintained by the Salish Sea Guillemot Network. This protocol includes the documentation of active burrows, bird behavior, fish deliveries, total birds present, disturbances (e.g. passersby walking on the beach), and any additional notes. A blank data sheet is available as Appendix 1. Mary Sue Brancato, secondary MRC project lead, performed the online data entry for all Clallam field data sheets into the regional database (Survey123). This data is still preliminary, pending final weeks of monitoring and a Quality Assurance and Quality Control (QAQC) process by the Salish Sea Guillemot Network.

A pigeon guillemot taking off with a gunnel in its mouth. Photo credit Peggy McClure.

5. Results

The results below are preliminary, as QAQC is still being conducted by the Salish Sea Guillemot Network. The summary of the season's data from the Survey123 database is available in Appendix 2.

5.1. Data Summary

Volunteers conducted a total of 88 surveys as of September 17th, 2025. Similar to 2024, monitoring took place over a total of 16 weeks in 2025 due to nesting activity that extended into September. The population of guillemots at each colony is estimated as the maximum observed in any one survey, and the total population across all eight colonies was estimated at 252 individuals in 2025.

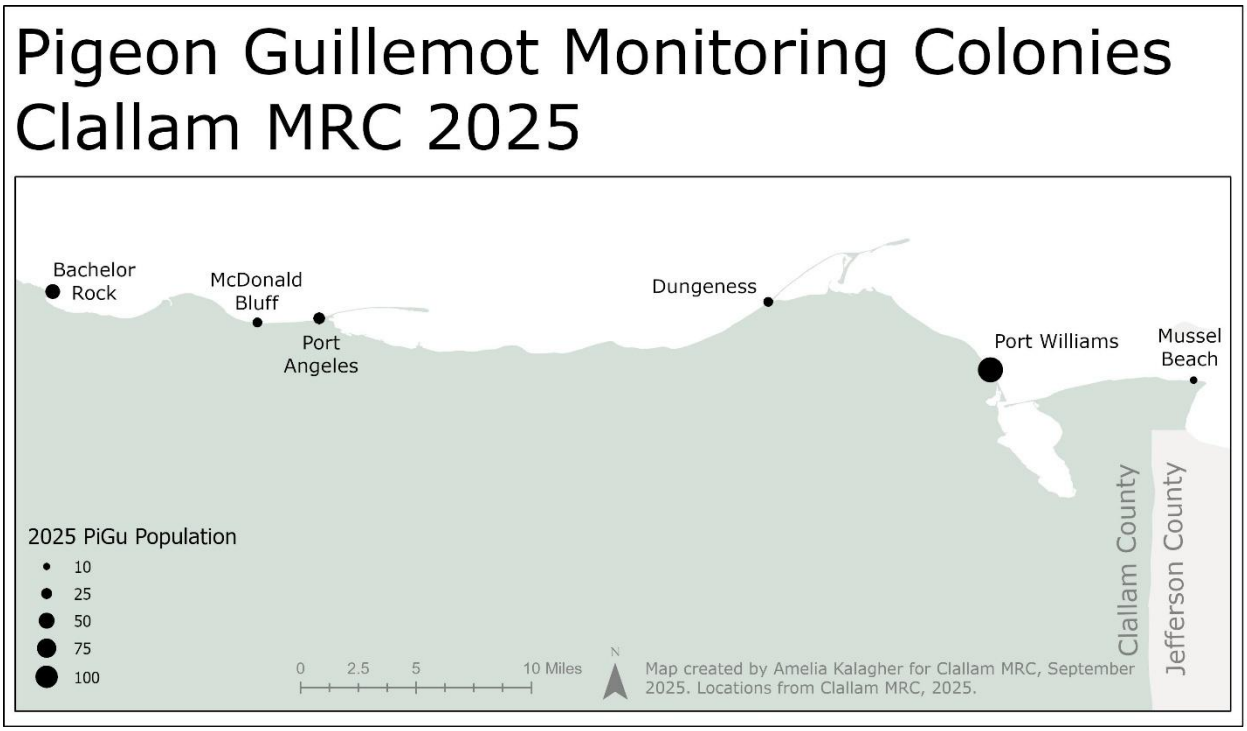

Figure 1. A map of the 6 geographic areas surveyed, with proportional point symbols representing the relative sizes of the pigeon guillemot populations observed at each in 2025. For ease of visualization, the three Port Williams colonies are combined into one total population on this map. Port Williams has the highest population (total 135 birds), while Mussel Beach had the lowest population (total 13 birds). We did not monitor the Panorama Vista site this year.

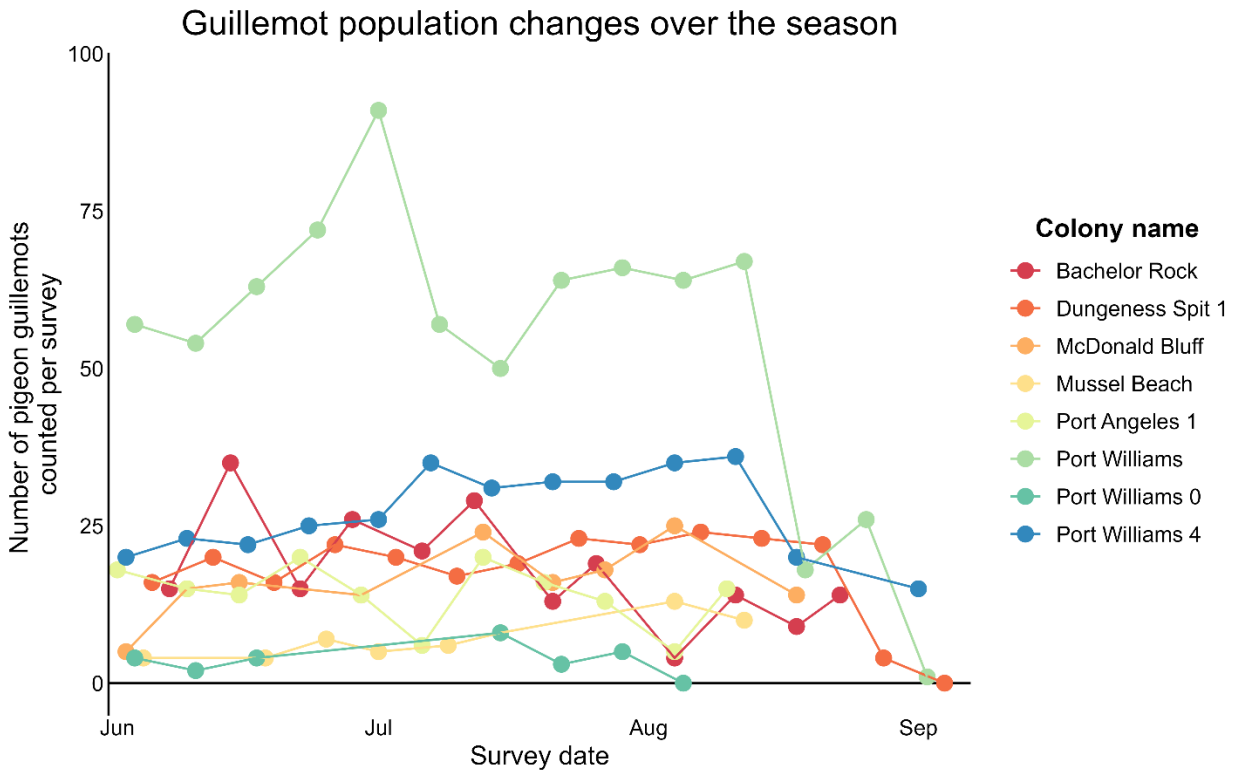

Figure 2. Maximum counts of pigeon guillemots by colony over the 2025 monitoring season in Clallam County. Points show survey dates and the y-axis values show the maximum number of guillemots observed in any one survey.

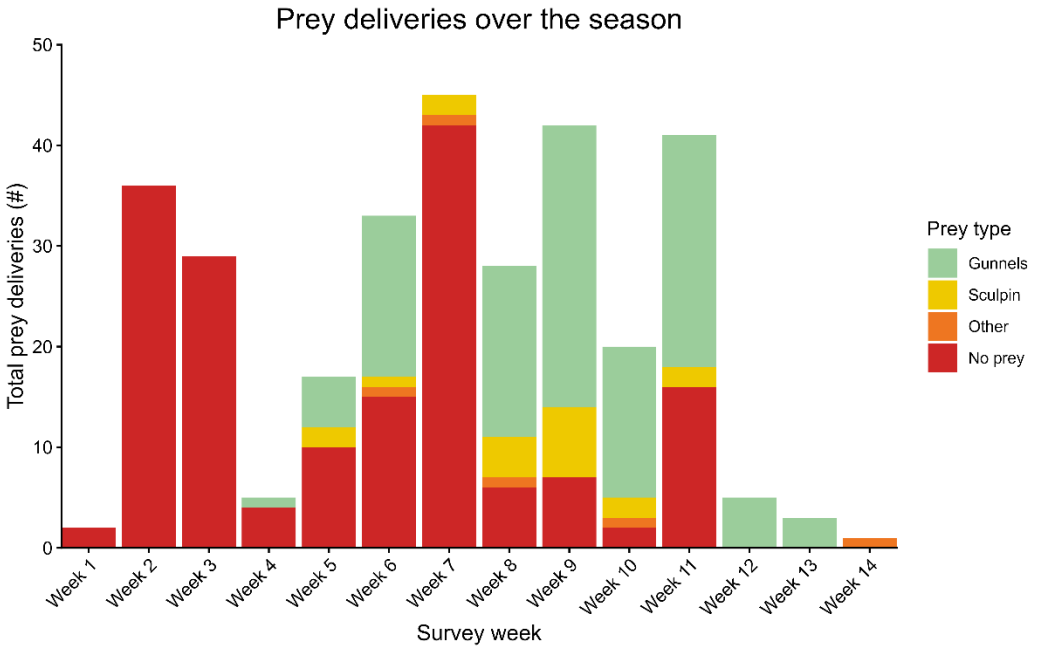

Figure 3. Shows what prey (gunnels, sculpin, other, or no prey at all) were delivered by pigeon guillemots to burrows throughout the 2025 monitoring season by survey week (x-

axis). Each week of the 2025 season, volunteers completed one survey per colony. Total prey deliveries (y-axis) equals the sum of all prey deliveries recorded for that week's surveys.

5.2. Outcomes

- Goal 1: Expand the monitoring area in the Salish Sea.
    - This goal was accomplished. Clallam MRC took on this project in 2016 to add pigeon guillemot monitoring sites to the regional effort, and it has continued to monitor sites with active nesting birds in 2025.
- Goal 2: Document pigeon guillemot breeding colonies in Clallam County beaches using established protocols that will provide data comparable across monitoring years and across study areas.
    - This goal was accomplished throughout the monitoring season, using the established protocol from the Salish Sea Guillemot Network. All volunteers followed this protocol, and data are currently going through a QAQC process.
- Goal 3: Involve, educate, and train citizen scientists to monitor the guillemot breeding sites.
    - This goal was accomplished this year by training and educating new volunteers (6) on pigeon guillemot monitoring protocols. Some volunteers returned (30) for a subsequent season due to their positive experience with the project, and some were newly trained (6) with the protocols and paired with an experienced volunteer for their first season.

5.3. Outputs

- 36 volunteers engaged in monitoring
- 703 volunteer hours contributed
- 88 hour-long surveys conducted over 16 weeks
- 8 colonies monitored, with a total estimated population of 252 guillemots
- 154 deliveries of prey to nesting young observed

5.4. Results in context

As a preliminary summary, we see similar numbers from the 2024 monitoring season compared to 2025 monitoring season (see Table 1). We had less volunteers in 2025, however a similar number of total hours volunteered, which means the citizen scientists worked more this year. Additionally, the 2025 season had a later first prey delivery date than 2024 and still had prey deliveries continue into September.

Table 1. Compares the 2024 and 2025 monitoring seasons.

	2024	2025
Total est. population	258	252
Chick burrows	30	33
First prey delivery	6/5/2024	6/23/2025
Last prey delivery	9/4/2024	9/1/2025
Total prey deliveries	151	154
Total no prey deliveries	202	169
Volunteers (#)	42	36
Volunteer hours	705	703

6. Project Highlights, Innovations & Stories

Collaboration is the key to this project's success. We wish to thank all of our dedicated volunteers for their citizen science monitoring efforts in 2025; our co-sponsor, OPAS; and the collaboration and support from staff at the Salish Sea Guillemot Network. Funding from the Northwest Straits Commission helped to make this another successful monitoring year. Of course, new and returning community and MRC volunteers are the core of this project.

7. Lessons Learned

Prey deliveries extended late into the season in 2025, requiring continued monitoring by volunteers and data processing from MRC member Mary Sue Brancato. In future years, the MRC will continue to keep in mind that this late-season effort is a possibility and continually plan for volunteer capacity with this in mind.

8. Next Steps

The data collected from this monitoring project may be used both for research into guillemots themselves as well as in larger nearshore monitoring contexts. The Clallam MRC plans to continue collaborating on this project next year, expecting many dedicated volunteers to return to the project.

MRC project lead Ed Bowlby seated for monitoring at Port Williams, with pigeon guillemot signage in the foreground. Photo credit Silas Crews.

Appendix 1: Blank Data Sheet

Pigeon Guillemot Survey - Beach Data Sheet

General Note: Use decimal notation. Example: 2 hours and 15 minutes =2.25

Colony Name: _____ **Survey Date:** _____ **Survey Week:** _____

Lead Name:_____ **Start Time:** _____

Observers:_____

_____

_____

_____

_____

Tide in feet @ start_____ **+ / -** (circle + or – tide value)

Direction: Incoming/Outgoing (circle)

Volunteer Time: _____ **Hours***

***Total for all volunteers including round trip travel, settling in, survey, and data entry.**

PIGU Counts:

_____ _____ _____

Start Middle End

Admin/QC Only

Disturbances (only document if birds react)

Enter beginning and end time for each disturbance. Also note if the disturbance ended before the survey ended with Y/N. Add a brief description of disturbance, if needed/desired. An example disturbance is shown below.

Eagle	Beach Walker	Walker w/ Dog	Motorized Boat	Non-Motor Boat	Unknown	Other Cause
8:48, 9:00, N						
Eagle flew low along beach. PGs flew out beyond the kelp and stayed there beyond the survey end.						

General Survey Notes: _____

Check the box if there were no visits to burrows for this survey date: ☐

Revised 5-4-2023

Colony Name: _____ Survey Date: _____ Survey Week: ____

Burrow Data

For each distinct burrow use a single row. Please enter all visits to burrow and prey deliveries for that burrow on that row. An example is shown below.

Burrow ID	Visit to Burrow (No Prey)	Sculpin	Gunnel (Include Prickleback)	Other/Unknown
A1	8:10, 8:23	8:46	8:15, 8:37	

Burrow Notes:_____

_____

Appendix 2: 2025 Data (Export from Survey123 Database)

2025 PIGU Breeding Season Survey Summary	
Number of Volunteers:	36
Volunteer Hours:	703
Number of Colonies:	8
Estimated PIGU Population:	252
Number of Chick Burrows Observed:	33
Number of Prey Deliveries Observed:	154

PIGU Population by Colony	
Bachelor Rock	35
Dungeness Spit 1	24
McDonald Bluff	25
Mussel Beach	13
Port Angeles 1	20
Port Williams	91
Port Williams 0	8
Port Williams 4	36
Total:	**252**

Numbers of Chick Burrows and Prey Deliveries by Colony		
	Chick Burrows	Prey Deliveries
Bachelor Rock	0	0
Dungeness Spit 1	3	17
McDonald Bluff	3	12
Mussel Beach	1	1
Port Angeles 1	2	3
Port Williams	14	63
Port Williams 0	0	0
Port Williams 4	10	58
Totals:	**33**	**154**

First and Last Dates of Prey Deliveries			
	First Delivery	Last Delivery	Period of Deliveries (Days)
Dungeness Spit 1	7/17/2025	8/14/2025	29
McDonald Bluff	7/13/2025	8/4/2025	23
Mussel Beach	7/15/2025	7/15/2025	1
Port Angeles 1	7/6/2025	7/13/2025	8
Port Williams	7/1/2025	8/26/2025	57
Port Williams 4	6/23/2025	9/1/2025	71