

Post Point Heron Colony

2021 Monitoring ~ Annual Report

prepared for:

The City of Bellingham
Department of Public Works

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EXECUTIVE SUMMARY

The Post Point Heron Colony is the only known heron nesting site in the City of Bellingham. The colony was first documented in 2000, at its present location in south Bellingham's Fairhaven district, adjacent to the Post Point Resource Recovery Plant. The colony is located in a forest patch on City owned property, situated between the wastewater plant and privately owned undeveloped land.

Due to the sensitivity of the heronry and its uniqueness within the city, Bellingham Public Works requested a management plan (2003), followed by a scientific baseline study of the colony in 2005 to document breeding chronology, nesting activities, colony status and habitat use. Following these efforts, annual monitoring of the colony has been employed as a conservation measure due to the colony's local significance as a critical habitat area, and unique natural feature within the urban area.

In 2019, the City of Bellingham Department of Public Works commissioned an updated management document. The [Post Point Heron Colony Management Recommendations Update 2019](#) was completed and is available online along with annual colony monitoring reports and other documents.

Habitats used by the Post Point herons include upland forest, fallow grass field, freshwater, estuarine and nearshore marine areas. All of these essential habitats form a habitat mosaic supporting staging, nesting, roosting and foraging. The Post Point heron nesting area is situated on a nearshore slope in mixed forest. The herons utilize this habitat for both nesting and roosting and are present seasonally in large concentrations to nest, and in smaller year-round roosting aggregations in the same contiguous forest as the colony. Herons forage along grassy margins and the intertidal shoreline of Post Point, Marine Park, Post Point lagoon and Padden Creek estuary, as well as shoreline areas of Bellingham Bay, Chuckanut Bay and Portage Bay.

The results of the 2021 Post Point Heron Colony Annual Monitoring are detailed in this annual update. Monitoring of the site spanned 7 months and included 27 site visits during the nesting season from February to August, plus 1 pre-season assessment and 1 visit in September to confirm the completion of the season. On-site surveys were conducted by professional biologists following a specialized scientific methodology for heron colony monitoring and safe distancing during the Covid-19 pandemic.

In 2021 there were 25 nest trees, 45 active nests with 42 nests with young observed. A total of 104 young were counted, with 95 young surviving to fledging age. The colony grew slightly from 2019-2020, and 3 new nest trees were added.

No significant disturbance or disruption to the colony was observed or reported during the 2021 nesting season. Bald Eagle presence and activity around the colony was minimal and no incursions into the colony were observed.

Passive human related disturbance to herons may occur in the colony due to an unauthorized foot path that remains through the colony core area. At Marine Park on low tides, people crowd herons attempting to feed, and herons are occasionally flushed by the nearby trains.

Overall, the 2021 nesting season for the Post Point Heron Colony was a success.

INTRODUCTION

The Post Point Heron Colony Annual Report details the 2021 heron colony monitoring results and provides a comparison with previous years. The Post Point heronry is located near Fairhaven in south Bellingham, Washington (T37N/R2E/Section 2) (Figure 1). This is the only known heron nesting site in the City of Bellingham and is considered a sensitive breeding habitat area. This nesting colony is moderate in size, is unique within the city, and is important for sustaining the area's heron population.

The Great Blue Heron (*Ardea herodias*) is a year-round resident in western Washington, and recognized as a Priority Species by Washington Department of Fish and Wildlife (WDFW). Heron colony sites are also considered Priority Areas by WDFW, and as Critical Areas in many jurisdictions, including the City of Bellingham. Heron nesting colonies are sensitive to human disturbance, requiring special management to maintain their stability and productivity.

The City of Bellingham Public Works Department has supported the conservation of the Post Point Heron Colony site by developing a management plan 2003, establishing a scientific baseline 2005, and funding professional monitoring of the colony, which has been ongoing since 2005. The [WDFW Management Recommendations for Great Blue Heron](#) 2012 provides heron life history information and management guidelines to inform planned projects and activities near heron colonies. The [Post Point Heron Colony Management Recommendations Update 2019](#) provides updated site-specific management guidelines and detailed background information.

Monitoring of the Post Point Heron Colony includes four primary components:

- **general monitoring**, focusing on heron in-colony activity, nesting chronology and related behavior;
- **disturbance monitoring**, observing and documenting any disturbances to the herons within the colony or feeding areas;
- **productivity monitoring**, tracking nesting activity, number of young/nest and fledging;
- **nest and nest tree survey**, updating the number of nests, nest tree location and utilization during the breeding season and assess overall forest health. Mapping of the colony also provides vital critical area information.

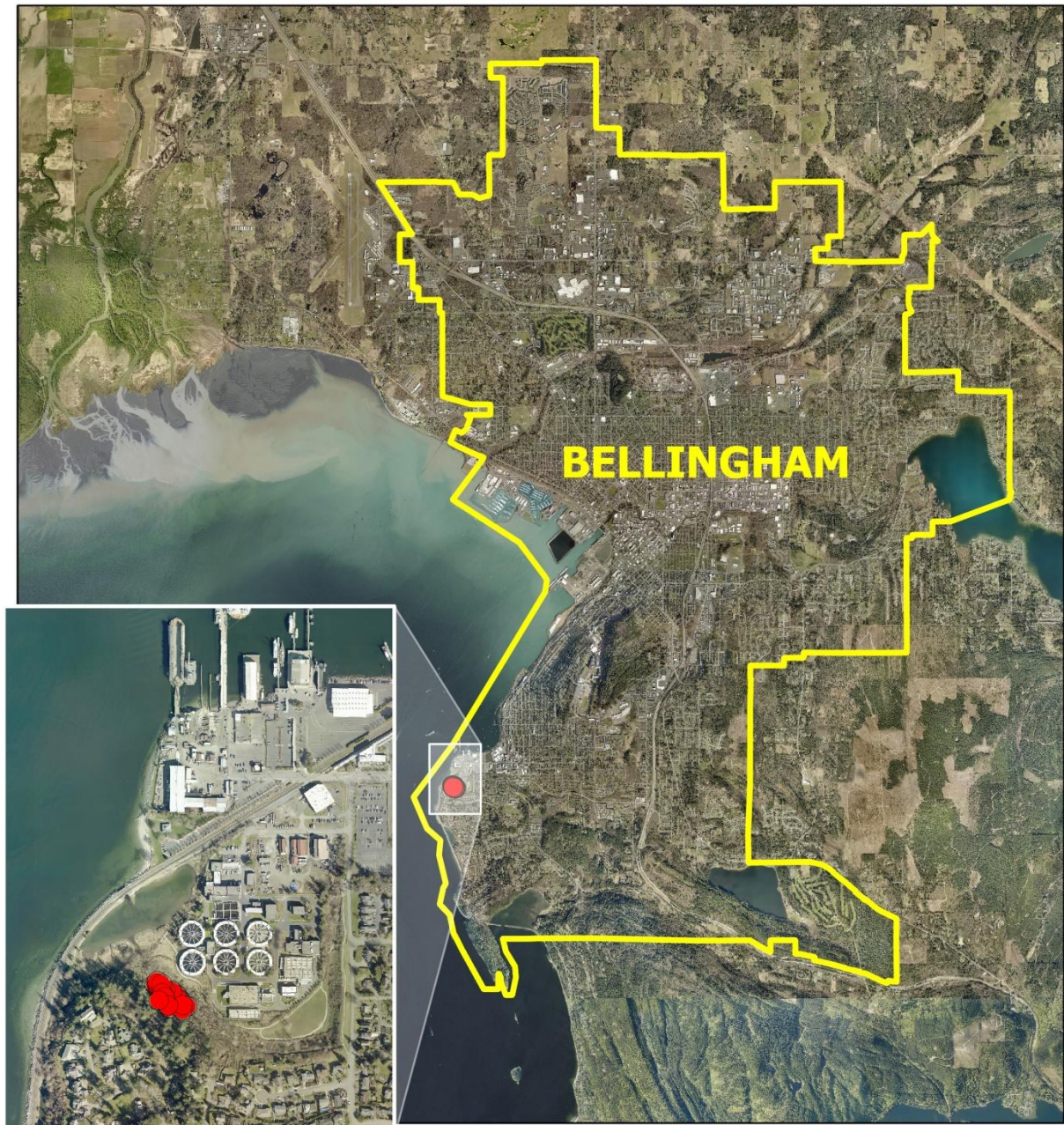
In addition to the colony monitoring, heron foraging observations are also made in the immediate area during the nesting season, to document feeding activity and habitat use.

Bald Eagle (*Haliaeetus leucocephalus*) occurrence and activity in the vicinity of the colony is also recorded during monitoring site visits, due to their role as the heron's primary predator.

Monitoring usually spans six months but may vary, depending on nesting season duration.

Planning and implementation of monitoring in 2021, including on-site field observation and data collection, was conducted by Tami DuBow and Ann Eissinger of Nahkeeta Northwest Wildlife Services. Ms. DuBow has 14 years experience and provides field reconnaissance and data compilation. Ms. Eissinger has 30+ years experience and is lead biologist, providing project management, data organization, analysis, and report preparation.

Figure 1
Post Point Heron Colony Location
Post Point Heron Colony 2021



2019 Air Photo

● Heron Colony

0 0.5 1
 Miles



SITE DESCRIPTION

Historically, Great Blue Heron would gather and roost year-round in the forested nearshore area of Post Point (Figure 1). This forest habitat has provided protection from prevailing south/southwest winds and weather, with the exception of wintery northeasters. The site occupies a patch of native mixed forest situated on a historical shoreline bluff, buffered from growing residential and urban development, and provides direct access to foraging areas and associated habitats. In 1999, a group of herons were displaced from their nesting colony along Chuckanut Drive during construction of the Blue Heron Estates, and the following year the herons settled to nest in their present location at Post Point. This heron colony has been present and active since 2000.

The Post Point Heron Colony is located on a 30 acre site owned by the City of Bellingham. This site includes a 7.4 acre forest on a north facing slope (part of which is privately owned). The area below the slope is shrub and grassy margins approximately 1.6 acres, with the Post Point Lagoon - a 3 acre pocket estuary - to the northwest. Adjacent to the lagoon west, is the BNSF railroad causeway which separates the lagoon from Bellingham Bay. The colony is situated between a public trail and the Post Point Resource Recovery Plant (PPRRP) to the north and residential development to the south (Figure 2).

Figure 2
Post Point Heron Colony and Post Point Resource Recovery Plant (PPRRP)



PPRRP view from northeast to southwest - June 2014 COB Photo

HERON HABITAT and HABITAT UTILIZATION

The Post Point habitats utilized by herons include: mixed forest, wet meadow, estuary and marine shoreline. The uses include nesting, roosting, loafing, foraging and staging. Each habitat and associated use is described below.

Forest or Nest Stand

The colony's forest or nest stand is mixed second growth containing large conifer and deciduous trees. The dominate overstory species are red alder (*Alnus rubra*), big-leaf maple (*Acer macrophyllum*), and Douglas fir (*Pseudotsuga menziesii*). Emerging western red cedar (*Thuja plicata*) are also present. The forest provides a suitable substrate for large nests, and the material for nests. The forest also provides protection from wind and weather and screening from human activity. Currently the heron nest trees are red alder and big-leaf maple.

The heron's primary use of the forest stand is for nesting, although the nesting area or colony nucleus only occupies 0.3 acre, they also require space outside the colony for roosting, loafing, preening and pre-nesting staging.

Wet Meadow

Wet meadow or fallow field habitat, is limited to small patches near the lagoon. These grassy margins are important habitat for upland heron prey, particularly meadow voles (*Microtus townsendii*), which serve as a vital food source for herons during winter and early nesting season. In addition to foraging areas, this habitat is also used for loafing, sunning and occasional staging.

Estuary

The estuarine habitat is Post Point Lagoon, is a pocket estuary that is fed by surface water runoff and connected to Bellingham Bay through a gap in the railroad causeway. The Post Point Lagoon shoreline and salt marsh edges serve as loafing and foraging habitat. The lagoon supports eelgrass (*Zostera marina*) which was enhanced in 2008. The lagoon also serves as a fledging site for young heron exploring outside the colony. This area is used year-round.

Marine Shoreline

The marine shoreline habitat of Bellingham Bay provides eelgrass meadows and open intertidal areas for herons to concentrate and forage during the nesting season and year-round. The shoreline area from Marine Park to Post Point includes low gradient intertidal habitat that extends over 300 feet from the rip-rap edge out into the bay, providing a wide margin of foraging area during low tides. This is the closest marine foraging area to the colony and is important for that reason. The herons also utilize other areas described later in this report.

One unique habitat feature of the Post Point site is the man-made structures used by the herons. Clarifiers and buildings located on the PPRRP grounds are occasionally used for pre-nesting staging.

An aerial photograph of Post Point in Figure 3 (below) provides an illustrated view of the heron colony, nest trees, colony buffers, roosting areas and important features near the colony, such as the PPRRP, the railroad, Post Point lagoon and marine shoreline feeding areas. Management buffers are also displayed.

More detailed descriptions and maps of heron habitat and management areas at Post Point is provided in the [Post Point Heron Colony Management Recommendations Update 2019](#)

Figure 3

Post Point Heron Colony 2021



2019 Air Photo

- Active Nest Trees
- Previous Nest Trees
- - - Recommended 300 Ft Vegetation Retention and No Disturbance Buffer
- Recommended 197 Ft Year-Round Core Zone Protection Buffer

0 100 200
Feet



GENERAL MONITORING - Methods

Annual Monitoring of the heron colony is a vital component of conservation and provides an ongoing record of the colony's status, health and productivity. The monitoring methods utilized at the Post Point Heron Colony site are specific to Great Blue Heron colonies and were developed by the lead Biologist, Ann Eissinger and are in part based on the [Heron Working Group - Survey Protocol](#) (Vennesland/Norman 2006). These methods have been adjusted over time to accommodate site-specific conditions and monitoring needs at Post Point.

General monitoring of the Post Point Heron Colony includes weekly on-site visits and observations made from various locations in close proximity to the colony. Monitoring occurs during the nesting season from February to July or August, and includes both visual and audible observations. Visual tools include binoculars and spotting scope, while sound readings are measured using a smart phone-app. Photographs are also taken during each visit.

Post-season monitoring takes place following the fledging of young from nests, and includes a nest count and mapping update in cooperation with the City of Bellingham GIS staff.

Data is collected on standardized field forms and transferred to individual spreadsheets which are used for tracking specific focal points. These include: nesting and behavior, trees and nests, Bald Eagle occurrence/depredation, and foraging. Due to the size of the Post Point colony, all visible nests are tracked through the season. Disturbance is assessed in the field and from all reports or records. All vertebrate species observed in the vicinity of the colony are also recorded as part of the monitoring protocol. Reports from neighbors and other observers are considered separately. Results for the season are analyzed and summarized in the annual report.

Monitoring of the colony includes four primary objectives:

- 1) documentation of the nesting cycle or breeding chronology, and related behavior;
- 2) observation and recording of disturbances including natural predators, human and other natural or unnatural sources;
- 3) documentation of nest success and productivity;
- 4) recording and mapping of habitat utilization and documentation of changes.

Monitoring of the colony captures 6 stages of the herons nesting season.

- Staging (1 week +/-)
- Colony Reoccupation (varies)
- Nest building, Mate selection, Courtship (varies)
- Egg laying (5 days +/-) and Incubation (28 days)
- Hatching and Rearing (8+ weeks)
- Fledging (young leave the nest usually at 8 weeks of age, but can vary)

In addition to colony monitoring, observations at nearby foraging sites are also made and recorded.

The total duration of the nesting season is usually about 6 months, but can vary. In the event there are late arrivals to the colony and/or nests fail and herons lay a second clutch of eggs, and subsequently rear those young to fledging, the season may then be extended by 3 to 4 weeks. By contrast, the season may be condensed to about 4-5 months, which was the case for the 2018 and 2019 nesting seasons.

2021 MONITORING RESULTS

The 2021 Post Point Heron Colony monitoring began February 2 and ended September 7, 2021. Monitoring is conducted on a weekly basis.

For this 2021 report, monitoring is divided into phases of the nesting season:

- Early Season (condition in the colony and staging),
- Colony Reoccupation (arrival and courtship),
- Egg-laying and Incubation,
- Hatching and Rearing of young,
- Fledging of young.

This monitoring report will provide a summary for each phase of nesting activity in the colony.

The weather is an important factor influencing the Post Point heron numbers in the colony, dynamics, conditions and productivity. Weather related notes will be dispersed throughout this report. The information provided is from the [Office of the Washington State Climatologist](#).

Prior to the 2021 nesting season, the fall/winter of 2020-21 was relatively mild, with December and January wetter and warmer than normal and resulted in no severe lowland winter storms. During February however, a brief winter storm did develop between February 10th-15th with high northeast winds, low temperatures in the 20s°F and measurable snow on the 13th and 14th. This storm did not deter herons from the heron colony as early season storms have done in past years.

Unlike the autumn-winter of 2019-2020 during which numerous nest trees were lost, the winter of 2020-2021 proved to be mild enough to cause little change in the colony nest stand. However, the gap in the colony nest stand core area caused by the September 2019 windstorm was still visible at the inset of the 2021 nesting season.

Early Season Assessment

The first visit to the Post Point Heron Colony took place on February 2 and no herons were present. During that site visit an assessment of the colony nest trees and a nest count was conducted. A total of 31 nests in 22 nest trees were recorded, reflecting. This compares to 42 nests and 23 nest trees recorded for 2020, a loss of 11 nests during the winter. The loss of nests is common during the winter, and replace by new nests built and existing nests repaired during the nesting season.

In addition to the 11 nests that had fallen during the winter, one nest tree was also lost #599. This nest tree, an alder, was one of 8 nest trees that had died in 2019 but was the last of those trees still standing and used for nesting. With the exception of 3 trees, the remaining nest trees were in good or excellent condition.



Colony reoccupation February 2020. Photo by Alan Fritzberg

Colony Reoccupation, Courtship and Early Nesting

Hérons returned to the Post Point Heron Colony February 8, 2021, similar timing as 2020. The herons were primarily standing and staging prior to nesting activities.

Although herons were observed in the colony for the rest of February, nesting activities did not commence in earnest until early March. The week of March 8th activity at the colony included courtship, pairing and nest building, with 38 herons observed and 22 nests active. This was considered full saturation of the colony and existing nests.

Meanwhile more herons were arriving and new nests were under construction through the month of March.

At the end of March, 39 nests were visible and all were occupied. Of those nests, 1 new nest was located in a new tree. Subsequently, more nests and nest trees were added.



Heron gathering nest material at Post Point Heron Colony (above)



Cooperative nest building (right)

photos by Nancy Downing 2/29/2020

Egg-laying and Incubation

For 2021, the heron's egg-laying and onset of incubation at the Post Point Heron Colony overlapped with the colony reoccupation in March similar to 2020. As early as March 8, heron were observed in a horizontal position in 6 nests. This posture is usually indicative of egg laying or incubation, however, this date for the onset of egg-laying or incubation is too early to square with observed hatching dates. Instead, copulation was first observed March 15 and 22 and onset of egg laying followed in 7-10 days. By March 22, egg-laying in 10 nests was assumed by the horizontal posture of herons in the nest, followed by the onset of incubation (also horizontal posture) the following week. Copulation, egg-laying and incubation continued into April.

As of April 6, 39 nests were counted and all but 2 nests were occupied by adults incubating eggs. April is normally the month of incubation for Northwest heron colonies. Generally this month is wet and cool, however this year precipitation was well below normal and temperatures were higher than normal.

Incubation requires 4 weeks and hatching of young is asynchronous.

Hatching and Rearing

The first detection of hatched young was April 19 with young begging sounds heard from certain nests. On April 27 young were heard throughout the colony and observed in 4 nests. Eggshells were also observed under nests. Hatching of young continued.

May is generally the month of hatching young and the onset of the 8 week rearing period. The hatching period varies at each nest and continues over several days, since eggs hatch asynchronously. The young are brooded while unhatched eggs continue to be incubated. The young will start out with sparse downy fuzz, and need brooding by a parent for warmth and protection or shading during hot spells. Feathers grow quickly and cover the body within three weeks. Both adults attend the nest and young during the rearing period, while young are restricted to the nest and are completely dependent their parents for all food and liquids. During the first 4 weeks of rearing, 1 adult remains in attendance at the nest for protection against predators. Rearing of young continued through May, June, into early July for most nests.

Although 4-5 eggs are laid in each clutch, normally only a portion of these young survive to fledging age.

By May 11, 80% of the colony had active young, and 2 nests had young left alone which indicate that those young were at least 4 weeks old.

As of mid-May a total of 45 nests were observed in the colony and all were active. The addition of 14 new nests were built since the onset of nesting. Three of these nests were in new nest trees.



Hatched egg on forest floor 4/19/2021 TD



Photo by Alan Fritzberg

Fledging

Fledging is the final stage in the nesting period and begins at about 8 weeks of age. In preparation to fledge, young heron exercise their wings while in the nest, followed by walking up limbs near their nests, and then taking test flights around the colony or nearby. The older young of a brood leave the nest first, so there may be a progression of young leaving the nest over the course of a week or more. When young actually leave the colony they may return following feeding or disperse from the colony for the season. The young generally follow the adults to feeding grounds and other habitats.

For the 2021 season, pre-fledging activity began June 13 with some young venturing out of their nests to nearby branches. By June 22 the onset of fledging was noted for 9 nests. Fledging continued to the end of the season. A total of 45 nests were active during the 2021 season, and of those 39 nests fledged young.

2021 Colony Fledging Progression

- June 22, onset of fledging, 3 nests fledged = 8%
- June 28, 9 nests fledged = 23%
- July 8, 11 nests fledged = 28%
- July 13, 9 nests fledged = 23%
- July 19, 1 fledged = 2.5%
- July 26, 1 fledged = 2.5%
- August, 5 fledged = 13%

*Note: The number of nests fledged represent those nests in which all young had left the nest

From these results, the majority of young, or 74% of the colony fledged over a 3 week period from June 28 to July 13, one week earlier than 2020. Fledging was also extended over a longer period greater than 6 weeks and some herons, adults and juveniles, remained loosely associated with the colony following fledging through August.

Failed and Obscured Nests

During each season a few nests are lost or fail to produce young, and others may become obscured from view restricting data collection. The following is a list of failed and obscured nests for the 2021 nesting season.

- 570, 100b, 562c occupied but obscured from view
- 575b – had 2 young in early June, but no young or adults were observed following that date and the nest was assumed failed
- 603c – supporting branch broke and nest fell out of tree with 3 young 6/13/2021
- 597a – supporting branch broke and nest fell out of tree with 2 young 8/18/2021

Note: young from fallen nests generally do not survive.

Other Occurrences

The weather is also an important consideration during the rearing period for heron young survival. This year, 2021, May was nearly ideal with daytime temperatures in the 60's°F and low precipitation. June however brought higher temperatures with 4 days exceeding 80°F and 3 days in the mid to high 90s°F which is very stressful for young especially in exposed nests without shade. At Post Point adult herons were observed shading young earlier in the season, but by June most young were left alone in the nest. Great Blue Heron thermoregulation on hot days is limited to seeking shade or water, changing posture (spreading wings) and gular fluttering similar to panting. Observations made in the colony on June 28 at 97°F, recorded little activity in the colony, as the remaining heron young quietly sat out the heat wave. At that time over 30% of nests had fledged their young.

In early June a young heron was found on the public trail near the heron colony. This was prior to the onset of fledging, however the youngster appeared to have a full set of flight feathers. An effort was made by City staff to capture the bird, but it was able to elude these efforts and returned to the colony nucleus. Fencing in and around the colony does create obstacles for fallen young and other wildlife on the forest floor. Photos below by COB staff June 1, 2021.



As mentioned earlier in this report, young frequently die in the nest. The cause of death can vary from exposure, competition, lack of food resources, dehydration, siblicide, predation or just falling. Because the Post Point Heron Colony is visible to the public and neighbors, reports of young in distress have been made to the City, unfortunately there is not much that can be done while the young are still in the nest.

Post Point Heron Nesting Chronology Summary 2021

The chronology of the 2021 nesting season includes the following dates of note:

- February 2: first monitoring visit, colony assessment, no heron present
- February 8: staging underway in colony nucleus
- February 17: reoccupation of the colony (3 pairs + 6 individuals)
- March 8: courtship and nest building, some heron in horizontal posture
- March 15: copulation, possible egg laying, continuation of courtship and nest building
- March 27: incubation underway
- April 19: onset of hatching
- May 11: hatching complete (most nests)
- April 27 to June/July rearing of young - requires 8 weeks
- June 22: onset of fledging
- July 26: 85% nests fledged all young
- August 7: 5 nests remain active
- August 18: 1 nest remain active with 1 juvenal, other herons present in the colony
- September 7: colony nesting confirmed complete – no heron present in colony

The total period herons were in the colony at Post Point in 2021 was 27 weeks. Of that time staging and reoccupation occurred the first 2 weeks, so the total duration of actual nesting was about 25 weeks. One nest remained active late in the season which could have extended the season 1 week to 26 weeks. As compared to previous nesting seasons, 2020 was the longest at 28 weeks.

A historical accounting of nesting periods and chronology is available in previous annual reports.



PRODUCTIVITY

The productivity of the visible nests within the Post Point Heron Colony is monitored annually, and measured during on-site visits prior to fledging. Productivity within the colony is an important indicator of the health, fitness and adequate food for a heron colony. It may also indicate mortality or reproductive failure. Herons lay four to five eggs per nest and may fledge a maximum of five young, but normally fledge two to three young per nest.

Productivity is measured by counting young in each nest (small colonies) or by using a sample of nests (large colonies >100 nests). The count is either completed late in the season prior to fledging, or on a continual basis. At Post Point all the young are counted at each visit, as soon as they are visible, particularly when being fed, and this provides an accurate count over the course of the season and is dependent on visibility of the nest.

For 2021, the Post Point Heron Colony had a total of 45 active nests for the season. Of those total nests, 3 lacked visibility to provide data, 42 positively produced young, 2 nests fell and the young died, and 1 nest was presumed failed, resulting in 39 successfully fledged young.

Based on season-long weekly observations of the colony and tracking of the active nests, a total of 104 young were counted (1 more than 2019 and 2020). Of the total young recorded 95 survived to fledging age. The observed loss of 2 occupied nests and recorded mortality of young in 2021 was similar to 2020. Additionally, at least 2 young were also noted as dying in the nest.

The 2021 productivity for Post Point was slightly lower than the previous 2 years, but close to the normal range for the colony. The production for 2021 was 2.47 young per visible active nest (N= 42) and 2.4 for successful nests (N=39). By comparison, productivity for 2020 was 2.51 per active nest, and 2.54 per successful nest and 2019, 2.57 per active nest and 2.7 per successful nest.

Mean productivity for a colony may be expressed in 3 different ways.

1. Per successful nest = total young divided by nests that fledged young, which does not account for inactive, lost, depredated or abandoned nests within the colony.
2. Per active nest = total young divided by all active nests for a given season, which does not account for inactive nests.
3. Per total nests = total young divided by all nests within a colony, which skews productivity results depending on the number of inactive nests.

For the Post Point heronry, young in all nests have been counted since 2013, so productivity for all active and successful nests can be calculated. Prior to 2013 counts were taken from samples of nests that were clearly viewed. In 2008-2009 the colony failed.

Productivity for Post Point has been above the normal range for this region based on published data. The comparable references include 1998-1999 averages for south-coastal of British Columbia which range from 1.24 per active nest to 2.15 per successful nest (Butler and Vennesland 2004) and 2000 averages in King County of 1.77 per active nest and 2.42 per successful nest (Stabins et.al. 2006). Based on these figures mean productivity is 1.5 per active nest and 2.28 per successful nest.

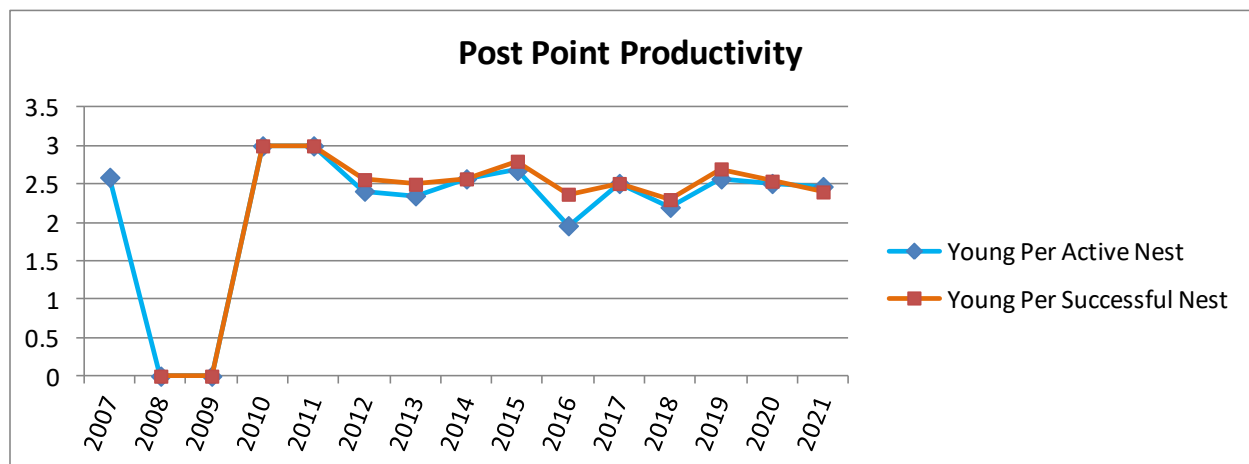
For the Post Point Heron Colony the mean productivity for a period of 9 years, 2013-2021 is: 2.42 for active nests and 2.51 for successful nests.

Table 1: Post Point Productivity 2013-2021

Year	No. active nests	No. successful nests	No. young total/fledged	No. young per active nest	No. young per successful nest
2021	45 (42*)	39	104/95	2.47	2.4
2020	40	37	103/94	2.51	2.54
2019	40	38	103	2.57	2.7
2018	44	41	97	2.2	2.3
2017	35	35	89	2.51	2.5
2016	29	24	56	1.96	2.3
2015	25	24	67	2.68	2.8
2014	21	21	54+/-2	2.57	2.57
2013	17	16	40	2.35	2.5

*42 nests had data

Figure 4: Post Point Productivity 2006-2021



Note: the Post Point Heron Colony was active but abandoned mid-season and failed to fledge young in 2008 and 2009.

NEST – TREE SURVEY and MAPPING UPDATE

The annual nest count is the standard method for determining the number of nests within a heron colony. Autumn nest counts, following leaf drop, allows maximum viewing of the whole heronry, and is used to attain a total nest count.

In most heron colonies not all nests are active or successful in fledging young, so although the autumn nest count provides a total, it does not represent active nests. A count of active nests needs to be conducted during the nesting season or immediately following fledging of young.

Due to the size of the Post Point Heron Colony and regular monitoring, visible nests are counted and tracked throughout the season as well as in the autumn.

During each annual nest count, each nest tree is tagged or existing tags are read, recorded and tree condition is noted. New nest trees are located with GPS, recorded and tagged. The number and size of nests are recorded as well as the presence of egg shell, remains or blown down nests. All information is recorded on a spreadsheet. A map, illustrating the nest trees and locations in the heronry, is updated annually by the City of Bellingham (Figure 6).

For 2021 a colony assessment was made December 10, by the consultant and City of Bellingham personnel. All nest trees and nests were evaluated and recorded. A total of three new nest trees were tagged and the locations of nest trees were updated with GPS.



Autumn nest tree survey - AE

The results of the 2021 colony assessment are:

- Total nest trees = 25
- Total new nest trees = 3 (all located west side of colony similar to 2020)
- 23 nest trees = red alder
- 2 nest trees = big-leaf maple
- Total nests counted Dec 2021 = 35 (of 45 active during 2021 nesting season)

For the most part the nest trees are in good or excellent condition. All of the eight nest trees that had mysteriously died in the winter of 2018-2019 have either fallen or broken off. The last of these trees # 599 fell down prior to the 2021 nesting season. The sudden cause of death of these alders remains unknown. The remaining alders in the nest stand appear healthy.

One nest tree #98, an alder, is the longest surviving nest tree in the colony and has been used since 2004.

Nests and Nest Tree Changes 2021:

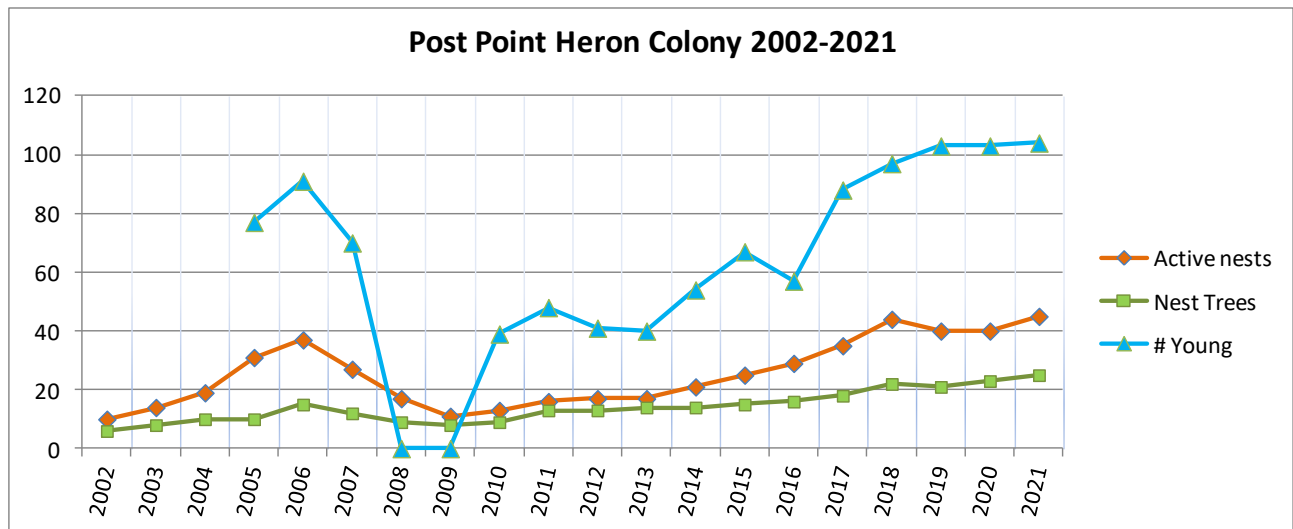
- Nest tree loss = 0 (however 2 large limbs did break off containing 2 active nests)
- Total nests in colony during nest season = 45
- Total nests with young = 45
- Nests lost during nest season = 2
- Nests lost Sept-Dec 2021 = 10 (likely blown out of trees)

The total number of nest trees changed by 1 from 2020 and 2021.

The nest density has decreased from previous years, with only 4 trees containing more than 2 nests which account for 37% of the nests in the colony. This dispersal of nests provides lower density in the core area. By comparison, in the past four years, a high nesting concentration occurred in the core area, with 55% of the nests in 6 trees (2020), 50% of nests in 5 trees (2018-19), and 74% of nests in 8 trees (2017).

The graphic summary of nests, trees and young over the past 20 years is provided in Figure 5.

Figure 5: Post Point Heron Colony Trends



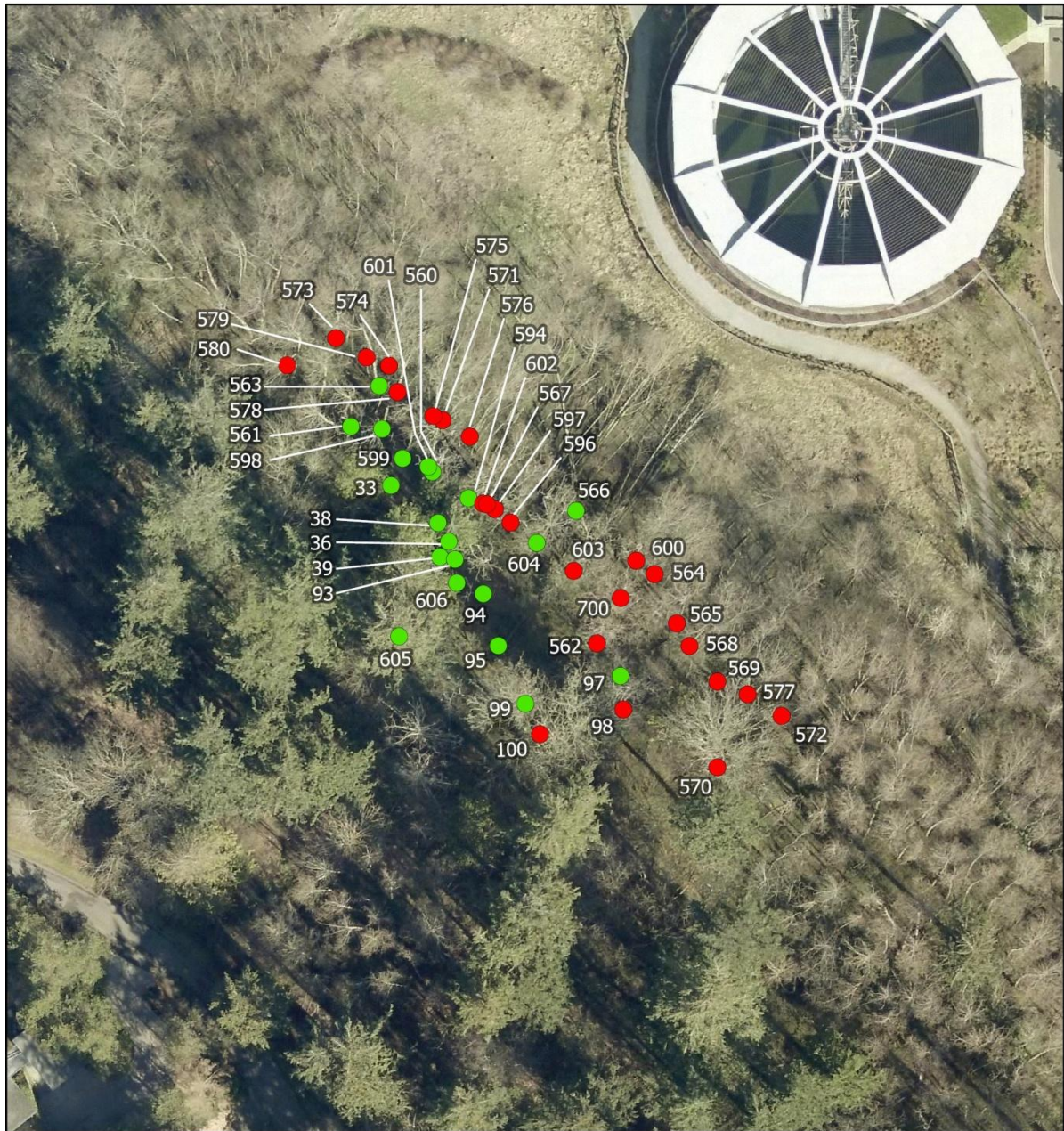
Note: No productivity data 2001-2004. Colony mid-season failure 2008 and 2009.

Colony Mapping

The 2021 colony map (Figure 6) illustrates all nest trees in the colony, including those used in past years (green) and those active in 2021 (red). The location of nest trees is determined by GPS and then mapped by the City of Bellingham. A tree location update using GPS was conducted in December 2021. Note - trees on the northern buffer that blew down 2018-2019 are visible on the underlying aerial photo.

Figure 6: Post Point Heron Colony 2021 Nest Tree Map

Post Point Heron Colony 2021



2019 Air Photo

- Active Nest Trees (with Tree ID)
- Previous Nest Trees (with Tree ID)

0 25 50
Feet



FORAGING OBSERVATIONS

One major contributor to productivity and the success of the heron's reproduction each year is foraging access and food supply. Herons depend on live prey from marine and fresh water systems, and terrestrial areas. Although the heron's prey species are known, no local data exists for these species, occurrence, seasonality, distribution, or abundance. A local assessment is needed to better define feeding areas, seasonality, and the prey available in each of those areas.

Basic foraging surveys are conducted during each nesting season and coincide with colony site visits. Heron numbers are recorded at the most immediate foraging grounds: Post Point Lagoon and the Marine Park shoreline south to Post Point where eelgrass meadows provide optimal habitat (Figure 3). Heron observed utilizing upland habitats for feeding have become rare. The Post Point herons also feed in other areas, refer to the [Post Point Heron Colony Management Recommendations Update 2019](#) for more detail and maps.

Of the total 27 site visits during the 2021 season, 16 were during favorable* foraging periods. Of these favorable foraging visits, 14 resulted in herons observed foraging along the marine shoreline or the lagoon. The table below provides foraging results by month for 2021.

Table 2: 2021 Foraging Survey Summary by month

Month 2020	# surveys	# site visits w/ favorable foraging tides	# site visits w/ herons observed	# heron observed on Marine Park shoreline per visit and tide level	# heron observed at post point lagoon per visit
Feb	4	1	1	0	1 ne shore standing
March	4	0	1	0	1 east shore standing
April	4	2	2	1 (-1 ft tide)	1 se shore
May	4	4	2	1 (-0.9 ft), 1 (0 ft tide)	0
June	4	3	4	3 (-1 ft), 6 (-2 ft), 4 (0 ft tide) adults and juvenals	2 near trestle juvenals
July	4	3	2	7 (-1 ft), 1 (-1.2 ft tide) Adults and juvenals	0
August	2	2	2	5 (-1.1 ft), 4 (-1.1 ft tide) Adults and juvenals	0
Sept	1	1	0	0	0
TOTAL	27	16	14	33	0

*Favorable foraging periods are at tidal stages 3 feet or below for the outer shoreline from Marine Park south, or when herons are present. The lagoon area is utilized for occasional feeding and loafing, so herons may be present at any tidal stage.

Adult herons are also regularly observed flying across Bellingham Bay to access foraging areas near Portage Island and the Nooksack River estuary. During the 2021 season, heron flights from the colony were frequently observed to these locales, indicating their use as primary foraging areas. Chuckanut Bay is also used and heron have been observed flying to and from the colony to Chuckanut Bay.

Surveys at favorable tide levels increased slightly in 2021 and the number of visits with herons present was up 64% over 2020, but only yielded a 43% increase in total heron numbers. The overall number of herons utilizing the marine shoreline and foraging group size was up slightly, but not significantly from 2020. Considering the size of the colony, greater numbers and

concentrations of herons utilizing this shoreline during optional feeding periods would be expected, instead, the 2021 heron numbers represent between 1- 7% of the colony's adults.

The largest concentration of feeding activity observed was in eelgrass between the Post Point lagoon outfall and Post Point. Factors related to foraging success in this area have not been measured, including, prey species occurrence, concentration, feeding success, timing, conditions or disturbance. Human presence may be a major factor given the proximity to Marine Park and direct access to the beach and intertidal area. In 2021, the 5 largest groups of foraging heron observed on the shoreline were present in the absence of people on the beach or intertidal area.

A comprehensive foraging survey is needed to determine where the Post Point herons are feeding. The colony's success is dependent on reliable food sources and undisturbed access.



Marine Park looking south over heron foraging area dominated by people, no herons present.
7/13/2021 -1.2 low tide photo by T. DuBow

Other Species

During the monitoring season, species occurring in the nest stand and vicinity are recorded. Over 60 species of birds have been observed in or near the Post Point Heron Colony including the shoreline areas. For 2021 no new species were noted.



Twin fawns in the heron colony
7/13/2021 T DuBow

DISTURBANCE

Disturbance to heron colonies is a common cause of colony abandonment. Disturbance may be the result of natural or unnatural causes, and is defined as an adverse behavioral and/or physiological response from at least one individual (Sutherland 1996, Walker et al. 2006). Repeated disturbances may result in, reduced food intake, reduced productivity or reproductive failure. Disturbances over time may cause the nesting colony to fragment, abandon or relocate.

One objective of on-site monitoring is to record disturbances or disruptions to the herons and supporting habitat. Any loss of heron, young or eggs, or repeated disturbance to the colony or feeding area is documented. The City of Bellingham is informed when causes are identified and can be corrected with further action. Unfortunately, weekly monitoring is limited and maybe inadequate to witness disturbances in real-time, so monitoring is supplemented by reporting by neighbors, citizens and PPRRP staff.

For 2021, No direct disturbances or disruptions were observed or reported in or near the colony. Unintentional or passive disturbances include an unauthorized trail next to the colony, recreationalists on the marine shoreline/foraging grounds and the BNSF train. The passive disturbances will be discussed first followed by the Bald Eagle accounts.

For several years, an unauthorized trail originating on Shorewood Drive, continues to be used by people and their dogs, and cuts through the forest immediately east of the heron colony. This trail is in full view of heron nests and is within the colony's core area on city property. Disturbance to the herons is possible particularly in the early season. The City has attempted to block the trail and post signs, however the trail continues to be used and should be permanently blocked and restored.

An ongoing issue has been human/heron interactions along the shoreline at Marine Park south. This area is an important foraging site for herons and is also a very popular shoreline use area for people, dogs and water-sports enthusiasts, thus creating conflicts during certain tidal stages.

In an effort to educate the general public and reduce interactions between beach users and herons, per the [Post Point Heron Colony Management Recommendations Update 2019](#), the City of Bellingham posted signs on a fence by the railroad at Marine Park and on the public trail near the heron colony in 2020 and again in 2021. The signs illustrate a shaded area associated with heron use including the nest stand, trail, lagoon and intertidal shoreline. The readers are asked to:

- Keep dogs on leash
- Maintain a distance of 300 feet from feeding herons
- Avoid flying drones, kites, or using kiteboards
- Limit noise

No systematic observations have been conducted to determine the efficacy of the signs or if people were reading them prior to accessing the beach.

Based on observations made during brief survey visits in 2021, no dogs were seen on the beach, no drones, kiteboards or kites were observed. Humans continue to use the full extent of the beach and intertidal areas, dig in the intertidal area, and wade and boat through sensitive eelgrass areas.



Sign posted at Marine Park 2021 - TD

Unauthorized trail through colony core 2021 - TD

Due to the continuation of the Covid-19 pandemic, no Ski to Sea Race activities occurred at Marine Park in May 2021. However, the annual Fourth of July fireworks did go on as planned over Bellingham Bay, but the display was set off near Squalicum Harbor, far from the Post Point, so no disturbance to the heron colony was likely.

Marine Park, shoreline areas and trails associated with Post Point continued to have use by families and recreationalists, particularly during nice weather and low tides. Pedestrians and dog walkers use trails daily, and both individuals and groups use the Marine Park shoreline for beachcombing, clam digging, swimming and kayaking. No dogs were observed on the beach in 2021 during brief survey visits.

Railroad train activity along the BNSF rail next to the Post Point Heron Colony has increased over the past decade, with increased frequency, longer loads and noise. Train whistles or horns, braking and other associated noises are loud, pervasive, and measured in 2021 ranging from 84 to 92.3 decibels (dB) at the Post Point heron colony. The average ambient noise level at the colony is normally 50-60 dB. Although the train noise does not have an observable disturbance to herons in the colony, train related flushing of heron from feeding along the shoreline has been observed. According to the BNSF website, train horns are estimated to be 96 to 110 dB, and are sounded multiple times when approaching a road crossing or if there are safety concerns. Establishing a railroad quiet zone would greatly benefit the heron colony and feeding grounds, but although that process has been underway in Bellingham for several years, it has not yet been completed for Fairhaven.

Drones and helicopters are a concern near heron colonies. Disturbance to herons may occur, and in the case of helicopters, damage may result from downwash. In the past drones and helicopters have been reported flying over or in the vicinity of the Post Point Heron Colony. No low flying helicopters or drones were observed or reported in 2021.

Another type of disturbance, or more of a disruption, is extreme weather. One record setting hot spell in association with an atmospheric heat dome occurred in June 2021. This event occurred between June 20-28 including 3 days of temperatures in the mid to high 90s°F one of which reached 99°F. This is very stressful to the heron young particularly in unshaded nests, but no mortality was observed or reported.

Bald Eagles *Haliaeetus leucocephalus* pose one of the greatest threats to the success of heron reproduction by disturbing colonies, eating unhatched eggs, and both preying on young heron and flushing flightless young out of nests. More aggressive eagles also threaten and prey on adult herons. However there is also clear evidence that Bald Eagles nesting near a heron colony have a beneficial effect on the heron colony productivity because the eagles repel other eagles from their nest territories thus limiting the depredation (Jones et al 2013).

Only Bald Eagles have been known to directly disturb or prey on the Post Point herons. Other raptor and corvid species occur in the area, but do not disturb the herons. Crows nest near the colony and attempt to chase eagles away from the colony.



Resident Bald Eagle Pair
Photo by Andrea Warner 5/14/2020

Bald Eagles are common near the Post Point Heron Colony. One or occasionally 2 eagles may be seen regularly perched above the colony or to the west. The most common occurrence is the mature male eagle, which seems to favor perching above the colony with its view over the bay. The eagle's passive presence does not disturb the herons.

During each monitoring visit to and in the vicinity of the heron colony, any observations of Bald Eagles are recorded. Of the 27 monitoring visits to the colony in 2021, 9 were positive for Bald Eagle presence, 2 of which were fly-overs. The frequency of eagle presence was noticeably less than 2020 and included only one eagle perching near the colony except for one observation that included an eaglet late in the season. No eagles were observed in the colony or disrupting the herons during the nesting season.

A pair of Bald Eagles, once nested next to the heron colony, but relocated to a nest site on Hawthorn Rd. approximately ½ mile southeast of the colony. The current nest was active between 2014 and 2016 as well as 2019 through 2021. Activity at the nest was not observed in 2017-2018, however young eagles were in the vicinity in 2018.

In 2021, the Bald Eagle nest on Hawthorn Rd. was confirmed to be active and produced 2 young. The nest was regularly monitored.



Adult eagle feeding young 2020 – A. Warner

The status of Bald Eagles in this region is not known, due to the discontinuation of Bald Eagle monitoring by WDFW. Bald Eagles were removed from the Federal Endangered Species Act in 2007, and down listed to “Sensitive” in Washington State in 2008. However, Bald Eagles and their nests, remain protected under the [Bald and Golden Eagle Protection Act](#) (federal), and local Critical Area guidelines.

CONCLUSION

This Annual Report provides the final summary of the 2021 heron nesting season and results of all monitoring activities. A total of 27 monitoring visits were made to the colony this season.

During 2021, the Post Point Heron Colony completed a successful nesting season, producing young and contributing to the perpetuation of this species in the Salish Sea. For the 22st season, the heron’s return and successful productivity are testament to the heron’s high site fidelity and resilience in this urban environment.

The 2021 nesting season started in February. A total of 45 nests were active, which is the highest number of active nests in the history of the colony. Of those, 39 nests were successful in fledging a total of 95 young for an average of 2.4 young per successful nest. A total of 25 nest trees were used and included 3 new nest trees. The season concluded with most young fledging between June 28 and July 13, however, a few nests remained active into August. By September all adults and young had dispersed from the colony.

No significant disturbance or disruption to the colony was observed or reported during the 2021 nesting season. Bald Eagles were present near the colony and no incursions occurred. Human related issues persist in and near the colony, including: use of an unauthorized pedestrian trail in the colony core area, human use of heron foraging areas at low tide causing passive disruption of feeding activity, and loud train noise and frequent passage of trains which occasionally flush herons from feeding areas.

Due to Covid-19 restrictions, the Ski to Sea race was again canceled, but the Fourth of July fireworks display on Bellingham Bay went on as planned but due to the distance from the colony it did not cause disturbance to the nesting herons.

Overall, the 2021 was a successful breeding season for the Post Point Heron Colony.

Looking ahead to 2022, there are a few recommendations to improve conditions for the herons.

- 1) block and restore the unauthorized pedestrian trail in the colony core area to reduce disturbance to the herons,
- 2) remove the temporary fencing in and near the colony to reduce obstructions to wildlife and heron,
- 3) monitor the 2022 Ski to Sea race on May 30 which will coincide with a favorable feeding low tide (-1.5 ft.) at 11:52am, just prior to the arrival of incoming teams to Marine Park, and keep crowds off the intertidal shoreline area south of Marine Park to reduce disturbance to the herons,
- 4) consider a foraging study to document heron feeding locations and document conditions.

Habitat protection in and around the heron colony, and foraging areas, remain a priority. Please refer to the [Post Point Heron Colony Management Recommendations Update 2019](#) for more information.



Post Point heron young in a nest - photo by Nancy Downing
2020

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