

Post Point Heron Colony

2018 Monitoring - Annual Report

prepared for:

The City of Bellingham
Department of Public Works
2221 Pacific Street
Bellingham, WA 98226



prepared by:

Ann Eissinger
NAHKEETA NORTHWEST WILDLIFE SERVICES
PO Box 2891
Corvallis, Oregon
(360) 770-6012
nahkeetanw@gmail.com



Table of Contents

	<u>Page</u>
Executive Summary	1
Introduction	2
Heron Habitat and Utilization	5
General Monitoring	11
Monitoring Results	11
Breeding Chronology	15
Productivity	15
Foraging Observations	16
Disturbance	19
Nest Survey and Mapping	25
Colony Dynamics	29
Management and Stewardship	30
Conclusion	32

FIGURES

Figure 1 - Post Point Heron Colony Location	4
Figure 2 - Post Point Aerial	5
Figure 3 – LiDAR Colony Cross-section	6
Figure 4 - Post Point Heron Colony 2017 Map Update	9
Figure 5 - Bald Eagle Nest Location 2016	22
Figure 6 - Post Point Heron Colony 2016 Nest Tree Map	28
Figure 7 - Post Point Heron Colony Trend	30

TABLE

Table 1 – 5 Year Productivity	15
Table 2 – 3 Year Productivity	15
Table 3 – Post Point/Marine Park Foraging Results 2018	17
Table 4 – Post Point/Marine Park Foraging Results 2017	17
Table 5 – Post Point/Marine Park Foraging Results 2016	18
Table 6 – Post Point/Marine Park Foraging Results 2015	18
Table 7 – Post Point Annual Nest Count	26

ATTACHMENT

Post Point Great Blue Heron Colony Annual Chronology

EXECUTIVE SUMMARY

The Post Point Great Blue 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 Wastewater Treatment 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.

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 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 2018 Post Point Great Blue Heron Colony Annual Monitoring are detailed in this annual update. Monitoring of the site spanned 7 months and included 27 site visits from February 1 to August 18, 2018.

The 2018 nesting season was once again delayed due to cold wintery weather extending through February. This is the third year in a row that the breeding season has been delayed. The 2018 weather was fueled in part by a strong La Niña event in the Pacific which was impacting weather throughout the western United States according to the Office of the Washington State Climatologist.

Starting in early March herons started to return, and reoccupy the colony area. The influx of herons continued into May, with the largest single year growth of the colony in its 19 year history. As a result the colony grew to a new high of 44 active nests. Nesting continued into August due to the influx of late arrivals to the colony.

The growth of the colony is encouraging, but is likely a result of displaced herons from the Samish Island heron colony which abandoned in 2017. The Samish Island heron colony was active for at least 80-90 years and was historically one of the largest and most productive colonies in the region, with an average of 250-300 nests.

A total of 44 nests were active and 41 successfully produced young. This active nest total was 8 more than 2017, and 6 nests above the colony's all-time high of 37 nests in 2006. Bald Eagle presence around the colony was infrequent and also peaceful this season, with no incursions in the colony reported. No major disturbances were observed or reported in the colony. Passive human related disturbance at the Marine Park foraging area does occur, as well as occasional flushing by the nearby train. Overall, the 2018 nesting season was a notable success, given the growth of the Post Point heron colony.

INTRODUCTION

The Post Point Great Blue Heron Colony Annual Report details the 2018 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). 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 Habitats by WDFW, and as Critical Areas in many jurisdictions, including the City of Bellingham, requiring the protection of both the herons and their habitat. Heron nesting colonies are sensitive to human disturbance, requiring special management to maintain their stability and productivity. The [WDFW Management Recommendations for Great Blue Heron](#) provides the necessary guidelines and important life history information to inform planned projects and activities near heron colonies.

The City of Bellingham Public Works Department has supported the conservation of the Post Point Great Blue Heron Colony site by developing a management plan 2003 (now outdated), establishing a scientific baseline 2005, and funding professional monitoring of the colony, which has been ongoing since 2005.

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 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 year to year.

Planning and implementation of monitoring in 2018, including on-site field observation and data collection, was conducted by Tami DuBow and Ann Eissinger of Nahkeeta Northwest Wildlife Services based in Bow, Washington. Ms. Eissinger has over twenty-five years experience monitoring Great Blue Herons and is expert in heron ecology, behavior, colony dynamics and stewardship. Her 2007 publication provides the most up-to-date synopsis of heron life history and status as a valued ecosystem component in Puget Sound - [Great Blue Herons in Puget](#)

[Sound: Technical Report 2007-06](#) prepared for the Puget Sound Nearshore Partnership. This technical report, serves as the general reference for heron life history and breeding information used in this annual update.

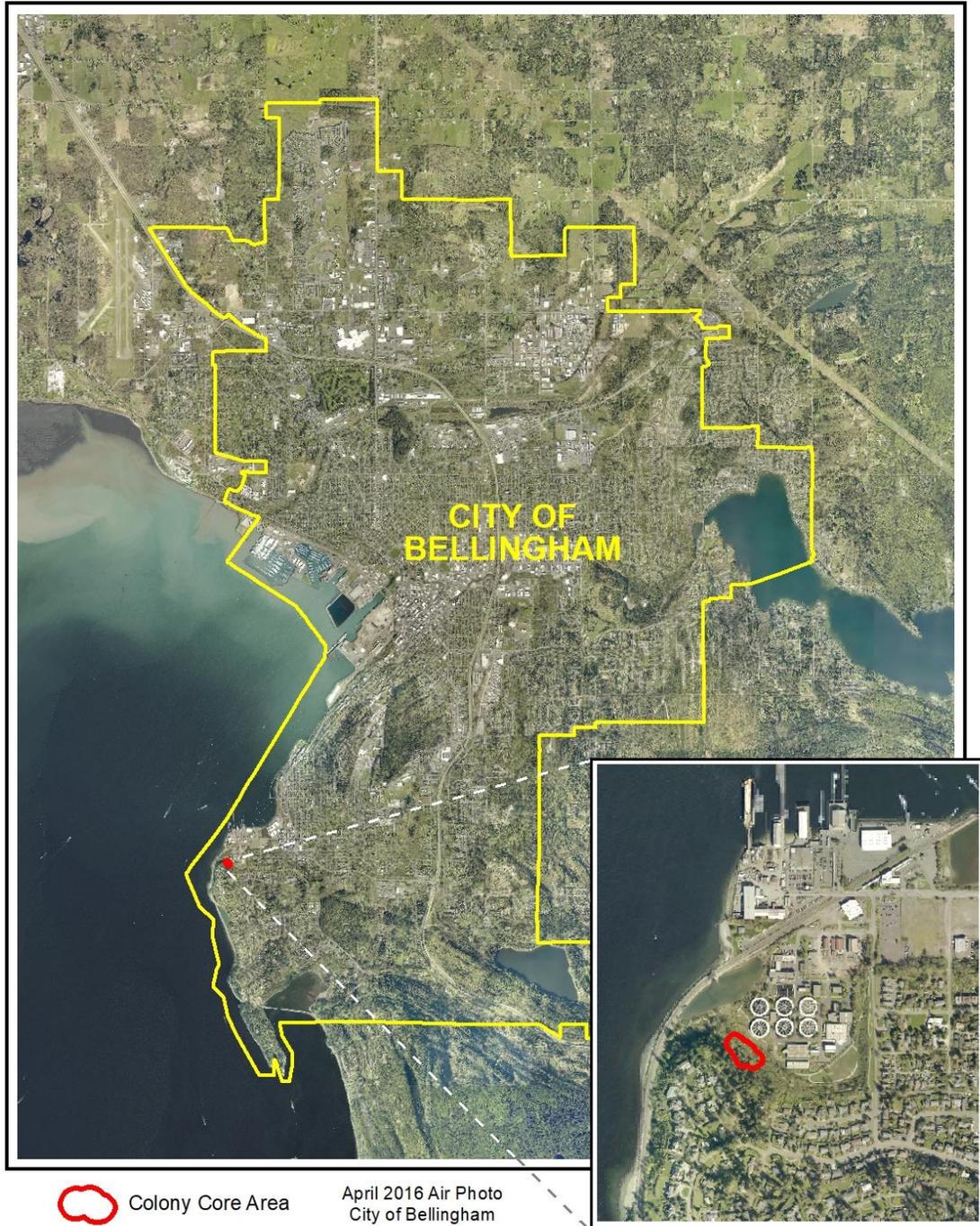
Ms. Eissinger is also the author of the 2003 Post Point Heron Colony Management Plan and 2005 Post Point Heron Colony Baseline Study prepared for the City of Bellingham, Department of Public Works. In addition, the Biologist has assisted in the development of interpretive displays and public education materials for Post Point and has provided public educational programs featuring the herons of Post Point and elsewhere around Puget Sound.

Progress reports submitted to the City of Bellingham during each nesting season document the heron's nesting activity and any observed disturbances. The point of contact for this project is the City of Bellingham Department of Public Works Post Point Wastewater Treatment Plant Operations Supervisor, Karl Lowry.



Figure 1
Post Point Heron Colony Location

POST POINT HERON COLONY



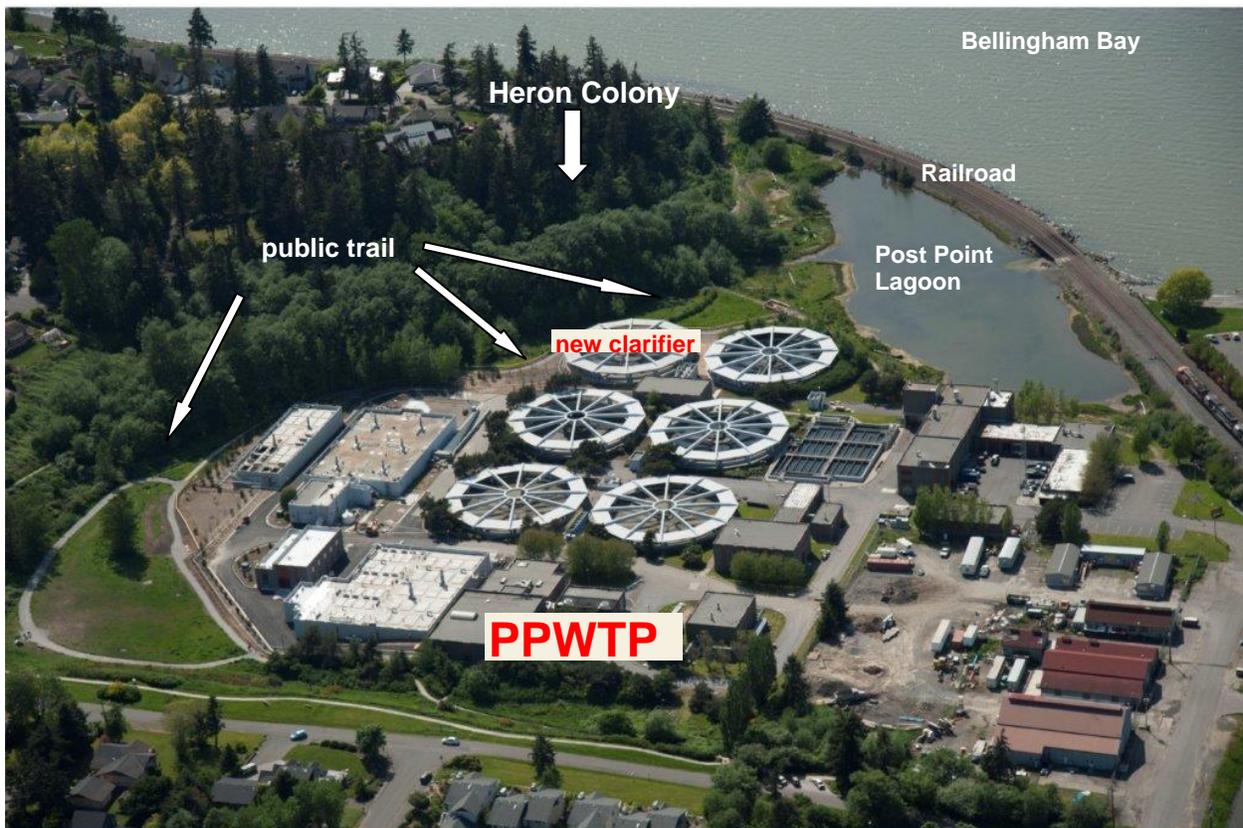
HERON HABITAT, HABITAT UTILIZATION and CHANGES

Historically, Great Blue Heron would gather and roost year-round in the forested nearshore area of Post Point. This forest habitat has provided protection from prevailing winds and weather, with the exception of wintery northeasters. This site occupies a patch of native mixed forest buffered from growing residential and urban development, providing 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.

Upland Habitat

The habitats utilized by the herons of Post Point include upland mixed forest, nearshore bluff, marine estuary, shoreline, intertidal eelgrass, and occasionally human structures. The upland mixed forest, situated along the nearshore bluff at Post Point (Figure 2), provides the structural substrate for seasonal nesting and year-round roosting. Within close proximity of the colony is favorable habitat including small patches of grassy fallow field, marine shoreline, protected lagoon, estuary and intertidal nearshore area with eelgrass meadows. There is also human development, public use park and trail, and a major railroad corridor situated between the colony and Bellingham Bay.

Figure 2
Post Point Heron Colony and Post Point Wastewater Treatment Plant (PPWTP)



Completed Expansion June 2014 COB Photo

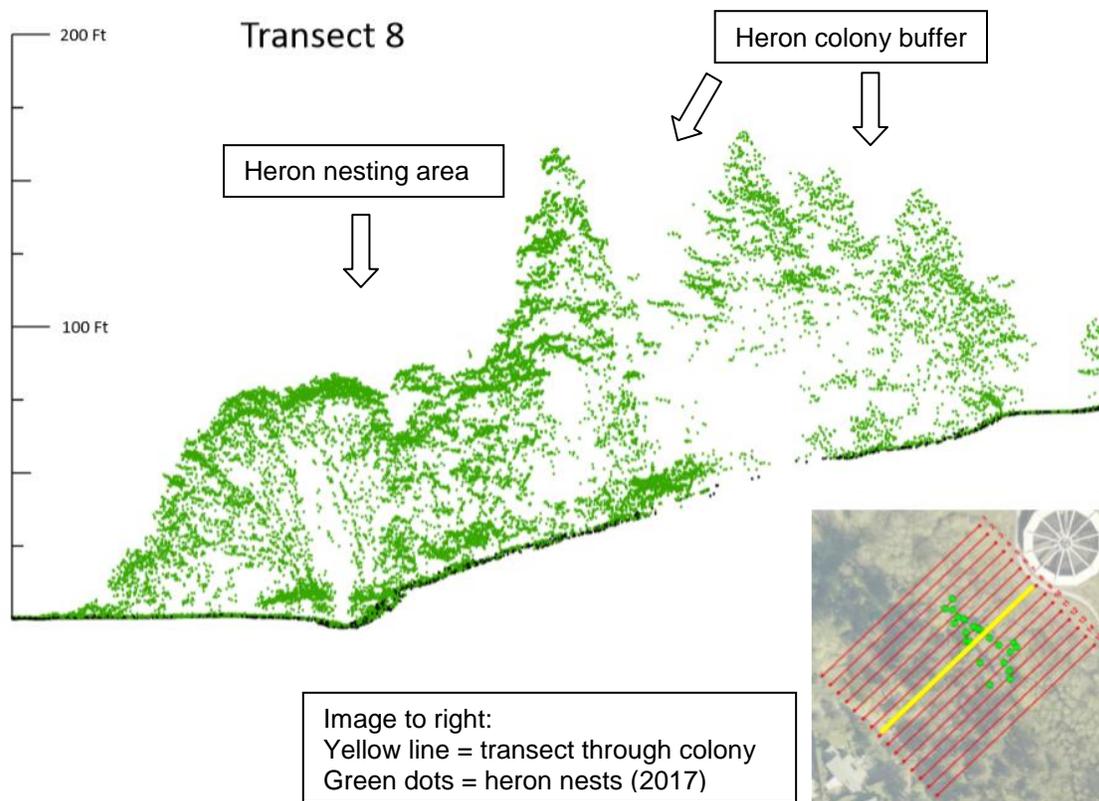
The upland forest, where heron nesting occurs, is located along the lower portion of a historic shoreline bluff. From the shoreline, the bluff line turns sharply inland, creating a protected forest habitat. The protected forest is situated out of prevailing winds and allows the herons separation and slight elevation above a public trail and nearby industrial facilities. Immediately upslope from the colony is a narrow buffer of large mature Douglas fir (*Pseudotsuga menziesii*) trees and vegetated undeveloped residential lots.

The colony's forest is mixed second growth containing mature conifer and deciduous trees. The tree species utilized by the herons for nesting have changed over time from a mix of Pacific paper birch (*Betula papyrifera*), big-leaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*) to only red alder. The nest stand is dominated by alder and Douglas fir. Many of the older nest trees are mature and have died or blown down over time. The birch may have succumbed to birch blight and have died, and not regenerated. Large Douglas fir trees define the bluff and provide a critical overstory, screening and wind break for the colony; they also serve as the primary roost trees for herons and Bald Eagles.

Fallow field habitat, present now only in small patches near the lagoon, is an 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. The Post Point Lagoon and salt marsh edges serve as loafing and occasional foraging habitat. The lagoon also serves as a fledging site for young heron exploring outside the colony.

In 2017, the City of Bellingham GIS specialist Chris Behee provided a cross-section of the Post Point heron colony using a LiDAR visualization tool. One of the transects (below) illustrates the topography and vegetation of the colony habitat.

Figure 3 LiDAR Cross-section of Heron Colony



Up to 2012, habitat and conditions had remained stable in and around the Post Point heron colony. Improvements were made to buffer the nesting colony to the north from passive human recreation, create more fallow field habitat, and to expand estuarine habitat in the nearby lagoon. Beginning in 2012, the expansion of the Post Point Wastewater Treatment Plant and construction of a new clarifier removed approximately 8,300 square feet of wetland habitat and part of that is existing wet meadow or field. Mitigation for lost wetland and meadow habitat is described in the [Post Point Wastewater Treatment Plant Expansion Mitigation Plan](#) dated 2011. A public trail was also constructed between the clarifier and the heron colony, allowing public access nearly 60 feet from the nearest nest tree. New fencing and added shrubby vegetation provides barriers between the public trail and nesting area, but has also eliminated the field habitat.

The proximity of the Post Point Wastewater Treatment Plant to the heron colony has not appeared to infringe on, or negatively affect the heron's activity or nesting success over the years. In fact, the heron's use of the PPWTP has been unique. Herons have utilized the top of the clarifiers during staging and occasionally during the breeding season, fledging and winter roosting. A break in this use occurred during 2012, 2013, 2014 (likely due to construction at the PPWTP) and this year 2017, likely due to NE winds and cold temperatures early in the season when use of the clarifiers is most prevalent. It is not known if off-gassing from the clarifiers has any negative effect to the heron or their young.



Hérons roosting on PPWTP clarifier - Photo by Tami DuBow 2/8/2016

Railroad

Separating the Post Point uplands and lagoon from Bellingham Bay is a man-made causeway built for railroad use (Figure 2 and 4). This segment of railroad curves along the shoreline and used daily by Amtrak passenger trains and BNSF trains transporting freight, coal, and crude oil.

This railway was originally built by the Great Northern Railroad in the early 1900's for local and regional transport of goods. The rail was placed along the marine shoreline and over-water in places using wooden trestles. Most of the wood trestles were replaced by rock riprap leaving only the Chuckanut Bay trestle locally and a few short bridges, including Post Point, to allow tidal waters to continue to flow to and from the larger shoreline lagoons, such as Post Point and Padden Creek Lagoons. Other smaller lagoons were permanently cut off from tidal flow and thus eliminating foraging opportunities for herons.

Maintenance and repair of the Post Point trestle took place in February-March of 2017. The noise from construction activities was measurable, with decibels reaching 80dB in the colony, which is about 18dB above the average ambient sound level at the colony. Although the noise from the railroad maintenance was well above ambient levels, there was no noticeable disturbance to the herons.

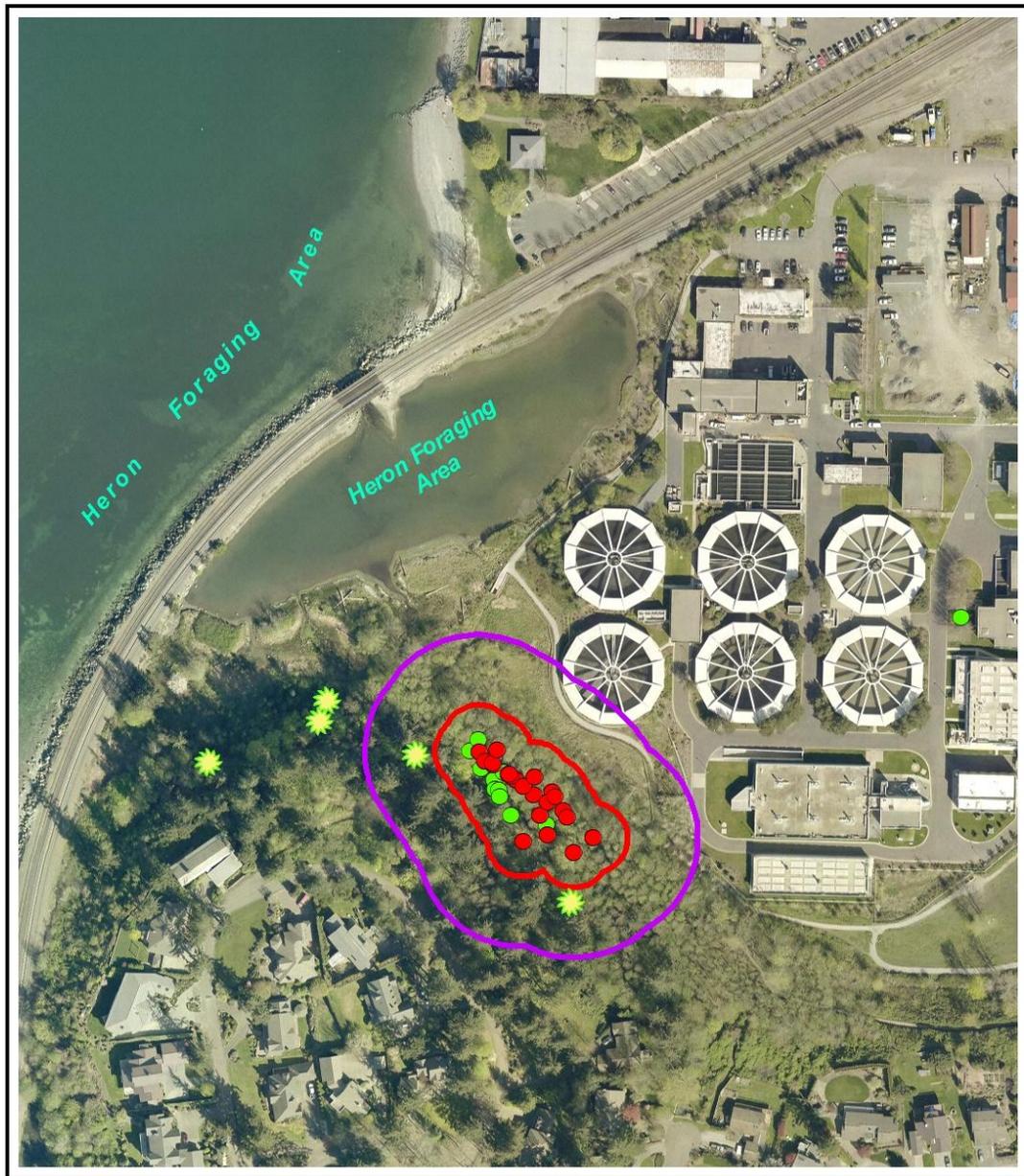
Increased use of the railway over the past 10 years has also increased disruptions both during the day and at night. These include noise, vibration and pollution. Due to the close proximity of the heron colony to the railway, potential disturbance and negative effects on heron reproduction is a concern and changes will be measured over time. To date the only observed impact of the railroad is the occasional flushing of heron from foraging along the shoreline caused by trains and associated whistle blowing.

Habitat Overview and Colony Location

An aerial photograph of Post Point in Figure 4 (below) provides an illustrated view of the heron colony, nest trees, colony buffer, roost trees and important features near the colony, such as the PPWTP, the railroad, Post Point lagoon and marine shoreline feeding areas.

Figure 4

POST POINT HERON COLONY 2018



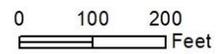
KEY:

- 2018 Active Nest Trees
- Previous Nest Trees
- ★ Roost Trees

- Colony Core Area
- 100ft Non-Disturbance Buffer



April 2016 Air Photo
City of Bellingham



Heron Foraging Habitat

Foraging habitats for herons include: field, freshwater, estuaries and marine intertidal areas. The most productive marine foraging areas are frequented during the breeding season and provide the essential prey necessary to nourish both adults and young. The foraging areas for the Post Point herons in and around Bellingham Bay were surveyed and mapped in 2006 and are illustrated in previous annual reports. Foraging areas utilized by the Post Point herons include, Chuckanut Bay, Padden Creek estuary, Portage Bay, Lummi Shore Drive shoreline, Nooksack River delta and suitable locations along the Bellingham Bay shoreline. The Post Point lagoon also provides some foraging habitat.

The most productive foraging areas for heron are shallow intertidal areas with abundant native eelgrass (*Zostera marina*) where prey species, primarily fish, reproduce and concentrate. Eelgrass is plentiful, but patchy, along the Post Point shoreline and heron use of the area is essential for successful feeding of young and maximum survival.



Other foraging habitat utilized by the herons include terrestrial fields, wet meadows, and freshwater systems including streams, wetlands, ponds, lakes and estuaries, which are important for small mammals, amphibians, and small fish as prey. Freshwater, wetland and terrestrial habitats are important year-round foraging areas due to their non-tidal nature and abundant prey base. Grassy fields and margins in particular support voles and other small mammals which provide a vital protein source during winter and early spring prior to egg laying at the early stages of nesting.

The foraging areas utilized by the Post Point herons were documented over 10 years ago. A survey update and documentation of current foraging areas is needed.

GENERAL MONITORING

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. General monitoring of the Post Point heron colony includes 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 early season, breeding/nesting and foraging observations. Post-season monitoring takes place following the fledging of young from nests, and may include foraging observations, colony checks, nest counts and mapping updates. Both visual and audible monitoring is used. Due to the location and associated vegetation around the nesting area, views of certain nests may be obscured following tree leaf-out. All visible nests are therefore utilized for observation throughout the season.

The 2018 Post Point heron colony monitoring began February 1 and ended August 18. Monitoring was conducted on a weekly basis.

Monitoring of the colony included 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. All data is collected by onsite observation and recorded on standardized data sheets. A monitoring tracking system is also maintained in a database. Results for the season are then assembled in an annual report.

Monitoring of the colony captures the 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)

The total duration of the nesting season is usually about 6 months, but can vary. In the event that 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 5 months, which was the case for the 2018 nesting season.

In addition to monitoring the actual nesting period, monitoring also includes pre-season or early assessment to document the condition of the colony and habitat prior to the heron's arrival, and post-season assessment and nest count to document the colony condition count nests following the nesting season. There is also a colony nest map that is updated each year. With consistent, repeatable methods applied annually, the colony can be accurately tracked over time and results compared.

In addition to the primary monitoring objectives, observations are made of any potential disturbances, including predators, human activity, loud noises, low-flying aircraft or other. Sound level is incidentally measured at each site visit using a cell phone app.

In addition to the Great Blue Heron, Bald Eagles (*Haliaeetus leucocephalus*) were also monitored for their potential nesting activity, presence near the colony, and possible depredation of, or disturbance to herons.

All vertebrate species identified in the vicinity of the colony are also recorded as part of the monitoring protocol.

2018 MONITORING RESULTS

For this report, monitoring is divided into 4 phases: Early Season, Colony Reoccupation and Early Nesting (arrival and courtship), Mid-Season (incubation, hatching and rearing of young) and Late-Season (fledging of young and post-nesting). This monitoring report will provide a summary for each period with detail provided for the immediate stage of nesting activity.

Early Season Assessment

The winter of 2017-2018 was greatly influenced by a strong La Niña event in the Pacific which was impacting weather throughout the western United States according to the Office of the Washington State Climatologist. Between December and March temperatures were on average well below normal, except a warmer than average January and a hot spell March 10-13 which set new records, including a new high of 70°F for Bellingham. Precipitation was well above average for the season. The cold and wet trend continued into spring, with late season snow, which delayed the return of herons to their nesting colonies. Warmer and dryer conditions were predicted for late spring and into the summer for 2018.

Following the winter, no major storm damage was observed in the Post Point heron colony nest stand. About 10 nests had blown out of trees, which is normal and one fir tree had blown down, but the nest trees appeared to be intact. As a result, 25 nests remained in the colony prior to the onset of nesting in 2018.

Despite the cold and wet weather, the field season resumed February 1, 2018. No herons were present. The weather grew colder in February and with freezing temperatures and snow, no heron were observed in the colony until March.

Colony Reoccupation, Courtship and Nesting

The reoccupation of the Post Point heron colony began late again for the third year in a row, with heron first arriving in the colony March 8, 2018. Only 12 heron were present initially, but that number doubled in 1 week (March 14) and in 2 weeks 20 nests were occupied.

Although the weather continued to be cold and wet, similar to 2016 and 2017, heron continued to enter the colony through the month of March. Herons were engaged in pairing, courtship and nest repair through the month.

By the 5th of April additional heron had arrived and 5 new nests built. A total of 25 nests were occupied, but the new arrivals continued. By the end of April, 37 nests were visible, and at least 31 nests were occupied. Interestingly, the colony continued to grow, with new nests being built into the month of May.

Egg Laying and Incubation

Egg laying and the onset of incubation occurs following courtship and usually takes place in March.

In 2018, the herons were both late to reoccupy the colony and to start nesting in earnest. In addition to a late onset, the leaf-out of nest trees with lush growth adds additional challenge for monitoring.



By March 29, egg-laying and incubation had begun for about 6 nesting pairs. By April 11, of the 25 nests visibly occupied, over 60% of these were incubating eggs, and the colony had settled into a normal seasonal pattern. However the colony continued to grow with nest nests being built into the month of May.

On April 26, the first young were heard, and hatching was confirmed by the eggshells on the forest floor. This date indicates that incubation for some nests had begun the first week of April, and this confirms the March 29 date recorded in the field.

Hatching and Rearing

May is generally the month of hatching young and the onset of the eight-week long rearing period. Early hatching in 2018 began April 26. By May 10 a total of 41 nests were visible, of which 27 or 66% of those nesting pairs had hatched young.

Since eggs hatch asynchronously, the hatching at each nest continues over a few days and young are brooded while unhatched eggs are incubated. Although 4-5 eggs are laid in each clutch, normally only a portion of these produce young that survive to fledging age.

May continued with the hatching young, brooding and rearing of young which requires 8 weeks. During this time, young are restricted to the nest and are completely dependent on both parents for all food and liquids. The young will start out with sparse downy fuzz, and need brooding by a parent for warmth and protection. Adults also provide shading of young when necessary. At four weeks of age the young are large enough to be on their own in the nest, so both parents may be away from the nest foraging for food. Over the eight weeks of rearing, young will grow feathers, including a full set of flight feathers, and will reach adult size.

By the end of May, all nesting pairs had hatched their young and rearing was underway. A total of 41 nests were active in the colony at that time.

Fledging

Fledging of young from the colony usually begins with individuals walking up limbs near their nests, then taking test flights around the colony or nearby. The older young 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.

Fledging of young from the colony began the first week of July. Over the course of the next 2 weeks about 45% of the nests (n=42) had fledged their young. On August 2, only 7 nests remained active. By August 18 all young had fledged, and both young and adult heron had dispersed from the colony.

Young heron in the nest about 6 weeks old



Post Point Heron Nesting Chronology Summary 2017

Early February: harsh winter weather continues including snow – no herons in colony.

March 8: 12 herons in colony.

March 14: colony reoccupation, 20 nests occupied – with more herons arriving. Activity includes nest selection, pairing, courtship, nest enhancement, onset of nesting, egg-laying and onset of incubation.

April: 37 nests occupied, plus late arrivals to colony, nest enhancement, egg laying and incubation. Early hatching April 26, same as in 2017.

May: 41 nests occupied, hatching, brooding and rearing of young.

June: rearing of young, 2 nests lost by falling out of tree.

July: fledging begin July 6, fledging continue through July.

August: 7 nests remain active Aug. 2, 4 nests active Aug. 10. Nesting season completed by August 18.

The total duration of the nesting period at Post Point in 2018 was 22 weeks total. Previous nesting periods include:

- 2017 = 17-18 weeks for most nests up to 23+ weeks total
- 2016 = 22 weeks, which does not include the initial 2 week occupancy, followed by the 2 week desertion of the colony in February
- 2015 = 25 weeks
- 2014 = 22 weeks
- 2013 = 19 weeks

In addition to the seasonal chronology, a historic chronology was developed for this colony. The historic chronology outlines the annual colony activity, nest count results and other pertinent occurrences for each consecutive year. The historic chronology is included as an addendum to this report.



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 of the colony. 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.

The Post Point herons successfully produced young from 41 nests in 2018, that is 9 more successful nests than in 2017, and 20 more than 2016. The colony's success and continued growth over the past 5 years is notable and the lack of known predatory incursions is likely a beneficial factor. Based on season-long weekly observations of the colony and tracking of the active nests, a total of 97 young were counted in 2018, 89 young were counted in 2017, 56 in 2016. In the past 2 years the number of young produced has increased by 41 or 73%.

Although the number of nests and young has increased over the past 5 years, the actual productivity has remained within a normal range (2.5 young per nest). Of the total 41 successful nests, a total of 2.4 young per nest were recorded for the 2018 season.

Table 1: Post Point Productivity 2013-2018

Year	No. active nests	No. successful nests	No. young	No. young per nest
2018	44	41	97	2.4
2017	35	35	89	2.5
2016	29	24	56	2.3
2015	25	24	67	2.8
2014	21	21	54+/-2	2.57
2013	17	16	40	2.5

In prior years (below) the productivity was based on a sample of clearly viewed nests and their young. Results from three of these years are provided in the following table.

Table 2: Post Point 3 Year Productivity 2010-2012

Year	No. active nests	No. nests sampled	No. young/sample	No. young per nest
2012	17	10	24	2.4
2011	16	14	42	3
2010	13	13	39	3

Based on research of heron colonies in the Strait of Georgia (The Great Blue Heron by Butler, 1997), productivity averaged 2.5 young per nest. The Post Point levels of productivity have met or exceeded that average with the exception of 2016. The 2018 results meet the regional norm. Productivity is a good measure of health, fitness and adequate food for a heron colony.

One major contributor to productivity and the success of the heron's reproduction each year is 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, their 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.

The number of active nests changed during the season. By April the colony's existing nests had been saturated. In April and May more heron joined the colony increasing the number of total nests to 44 for the season, however 3 nests fell and were not replaced. The addition of 9 more nests (nesting pairs) in 2018 may be related to newly mature young returning to the colony to breed for the first time, or possibly adults relocating from other colonies, or some combination of the two.

FORAGING OBSERVATIONS

Basic foraging surveys are conducted near the Post Point heron colony by the monitoring biologist during each nesting season. In the early season (February and March), site monitoring is timed to coincide with higher tides in order to maximize the number of heron in the colony for observation. Following hatching of young, monitoring in the colony is best timed with low tide in order to maximize observations of adults feeding young, and therefore gain an view of the young in each nest.

Documentation of heron numbers at the most immediate foraging grounds and feeding habits are recorded, however, the herons are known to fly several miles in search for food. Foraging area preferences vary and are likely based on tides, currents and favorable habitat access, seasonal prey availability, water temperature, and other conditions including waves and disturbance factors.

Hérons foraging in eelgrass near Marine Park

Photos by Alan Fritzberg 2010



The Post Point/Marine Park shoreline is the nearest feeding area to the Post Point heron colony (Figure 4). This shoreline is used frequently during favorable tides and even daily for foraging during the peak nesting season. Shoreline observations were made at each site visit during the 2018 season except February.

Of a 27 total site visits during the 2018 season, 13 were during favorable foraging periods, based on low tidal stage and exposed intertidal area at Post Point. Of these favorable foraging visits, 10 resulted in herons observed foraging along the marine shoreline or the lagoon. The tables below provide foraging results by month for years 2015-2018.

Table 3: 2018 Foraging Survey Summary by month

Month 2017	# site visits w/ favorable foraging	# site visits w/ herons observed	# heron observed on Marine Park shoreline per visit	# heron observed at post point lagoon per visit
Feb	0	0	0	0
March	1	0	0	0
April	1	0	0	0
May	4	4	3,3,1,16	0
June	3	2	4,0,5	0
July	2	2	2,2	3,0
August	2	2	1,2	3,0
TOTAL	13	10	39	6

Table 4: 2017 Foraging Survey Summary by month

Month 2017	# site visits w/ favorable foraging	# site visits w/ herons observed	# heron observed on Marine Park shoreline per visit	# heron observed at post point lagoon per visit
Feb	0	0	0	0
March	2	1	0,1	0
April	2	0	0	0
May	3	3	1,1,4	0
June	4	1	0,1,0,0	0
July	2	1	2,0	1
August	1	1	1	0
TOTAL	14	7	11	1

Table 5: 2016 Foraging Survey Summary by month

Month 2016	# site visits w/ favorable foraging	# site visits w/ herons observed	# heron observed on Marine Park shoreline per visit	# heron observed at post point lagoon per visit
Feb	0	0	0	0
March	2	0	0	0
April	2	0	0	0
May	4	2	3,0,0,5	0
June	4	3	3,6,6,0	0
July	3	2	4,0,1	0
August	1	0	0	0
TOTAL	16	7	28	0

Table 6: 2015 Foraging Survey Summary by month

Month 2015	# site visits w/ favorable foraging	# site visits w/ herons observed	# heron observed on Marine Park shoreline per visit	# heron observed at post point lagoon per visit
Feb	1	0	0	0
March	5	0	0	0
April	3	0	0	0
May	2	2	1,4	0
June	5	3	1,2,1	0
July	3	3	1,1	1
TOTAL	19	8	11	1

The heron's use of saltwater shorelines is limited by tidal stage (exposed intertidal area and water depth), prey availability, wave conditions and human activity. Eelgrass (*zostera marina*), which grows in low gradient, soft sediment intertidal areas from 1.3 meters to 9 meters depth, provides habitat for most of the heron's marine prey species. Eelgrass meadows are light sensitive and regenerate every year, with maximum growth in May and June. The foraging area at Post Point and Marine Park is limited due to substrate and gradient, so use of this area by herons coincides with the eelgrass growth cycle, abundance of prey, and increased need by the herons to feed young, which normally peaks from late May through June, during the last stages of rearing young.

Adult herons are also regularly observed flying across Bellingham Bay to access foraging areas at Portage Bay and the Nooksack River estuary. During the 2018 season, heron flights from the colony were frequently observed to these locales, indicating their use as primary foraging areas. Chuckanut Bay is also thought to be used, but has not been surveyed in recent years. During the heron's rearing period, following hatching, heron concentrations at Post Point increase during favorable tides.

Foraging surveys for 2018 clearly reinforced previous years data, with the greatest number of heron observed in May and June. This period coincides with the rearing of young. The total number of heron observed during any single visit ranged from 1-16, with the high count reported on 5/28/2018 during low tide the morning of the Ski to Sea race. Overall there were more herons observed utilizing the shoreline than in the previous 3 years.

Disturbance at or near the foraging areas occur frequently and are related to various sources, including people and dogs on the beach, trains, boats and boat wakes and predators. In an effort to limit encounters between heron and human, human related disturbances or dogs, the City of Bellingham, has in the past posted signs to alert shoreline users at Marine Park to the sensitivity of the eelgrass and lagoon areas and requested that people not disturb herons. However, signage is no longer posted. Citizens, recreationalists, and in some cases educational groups, utilizing the shoreline continue to walk toward herons in the intertidal area, and subsequently flush heron from feeding areas. Kayakers also use the area, but appear to provide a wide berth around herons if present. It is recommended that new signage be designed and strategically placed at Marine Park to be effective for all users of the beach and shoreline areas.

Other disturbances are railroad related noise, railroad maintenance, and increased frequency of rail traffic. Herons have been observed flushing from their feeding grounds when a train approaches and sometimes they return to feeding and sometimes leave or return to the colony.



Mike Hamilton photo

Other Species

During the course of the monitoring season, species occurring in the nest stand and in the vicinity are identified and noted. No new species were reported in 2018.

In the past 2 years Green Heron (*Butorides virescens*) were observed nesting and raising young near the heron colony, flying through the colony, or foraging on either Post Point or Padden Lagoon. In 2018 no reports of Green Heron were received and no observations recorded. With new clearing and construction underway at the lower section of Padden Creek, the Green Heron may have moved elsewhere.

DISTURBANCE

Disturbances to Salish Sea heron colonies may range from predators, human activities and/or intrusion into the colony, cutting of nest trees or nearby timber harvest, development, to low-flying air craft (manned and unmanned), adverse weather, and toxins. Any natural or unnatural cause of stress, changes in normal behavior, or flushing from nests, roosts or feeding grounds is considered a disturbance. In some cases, intentional human-caused disturbance would be considered harassment and could be an enforceable offense. 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 all disturbances, including those observed and reported by other sources. Outside reports are followed up on in the field. Any loss of heron, young or eggs, or repeated disturbance to the colony or feeding area is taken very seriously, and remedies to counter the disturbance are explored and implemented where possible. Unfortunately, weekly monitoring is usually inadequate to witness disturbances in real-time, so monitoring is supplemented by reporting by neighbors, citizens and PPWTP staff.

With the completion of the Post Point Wastewater Treatment Plant expansion in 2014, close attention was paid to the heron's response to the alteration of habitat, new clarifier and associated public trail, both located within 100 feet of the colony. Over the past four years, no obvious disturbance or negative reaction by the herons has been noted, however, there has been a strong chemical odor emitted from the new clarifier which could have an indirect effect on the herons or their young.

Railroad train activity has increased over the past several years, with increased frequency and longer loads. Train whistles have also increased in frequency and been measured at 85.8 decibels (dB), while the average ambient noise level at the colony is 55-60 dB. Train related flushing of heron from feeding along the shoreline has also been observed.

Drones continue to be of concern. In 2016, individuals flying drones were observed at Marine Park. Drones were also used in this area in 2017. Drones are considered a source of intentional harassment by WDFW if flown in sensitive areas such as heron colonies or their feeding areas when herons are present. Drones need to be restricted from the heron colony, associated forest buffer, and foraging areas during the nesting season.

During the 2018 heron nesting season, no direct disturbances were observed or reported in the heron colony.



Resident Bald Eagle pair near heron colony.

Photo by Jack and Sandi Starr 2/10/14

Bald Eagles and Other Predators

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. During each monitoring visit to and in the vicinity of the heron colony, observations are made of potential predators, such as Bald Eagles, Red-tailed Hawks, Crows and Ravens.

Only Bald Eagles have been known to directly disturb or prey on the Post Point herons. Crows have been known to enter the colony following Bald Eagle incursions, presumably to scavenge on the spoils. Great Horned Owls may use heron nests, but not prey on herons.

Bald Eagles are common near the Post Point heron colony. One or occasionally 2 eagles may be seen regularly perched above the colony in a large Douglas Fir or to the west also in a large fir. The most common occurrence is the mature male eagle, which seems to favor this particular perch above the colony with its view over the bay. The eagle's presence in the big fir does not disturb the herons.

A mature pair of Bald Eagles, once nested near the heron colony, but has relocated to a nest site to Hawthorn Rd. approximately ½ mile southeast of the colony. The new nest location relative to Post Point is illustrated in Figure 5. This nest site was active in 2016, however only one eagle was observed at the nest tree early in the season. Following regular visits to the nest tree, no nesting was observed and no young were produced in 2017 or 2018.

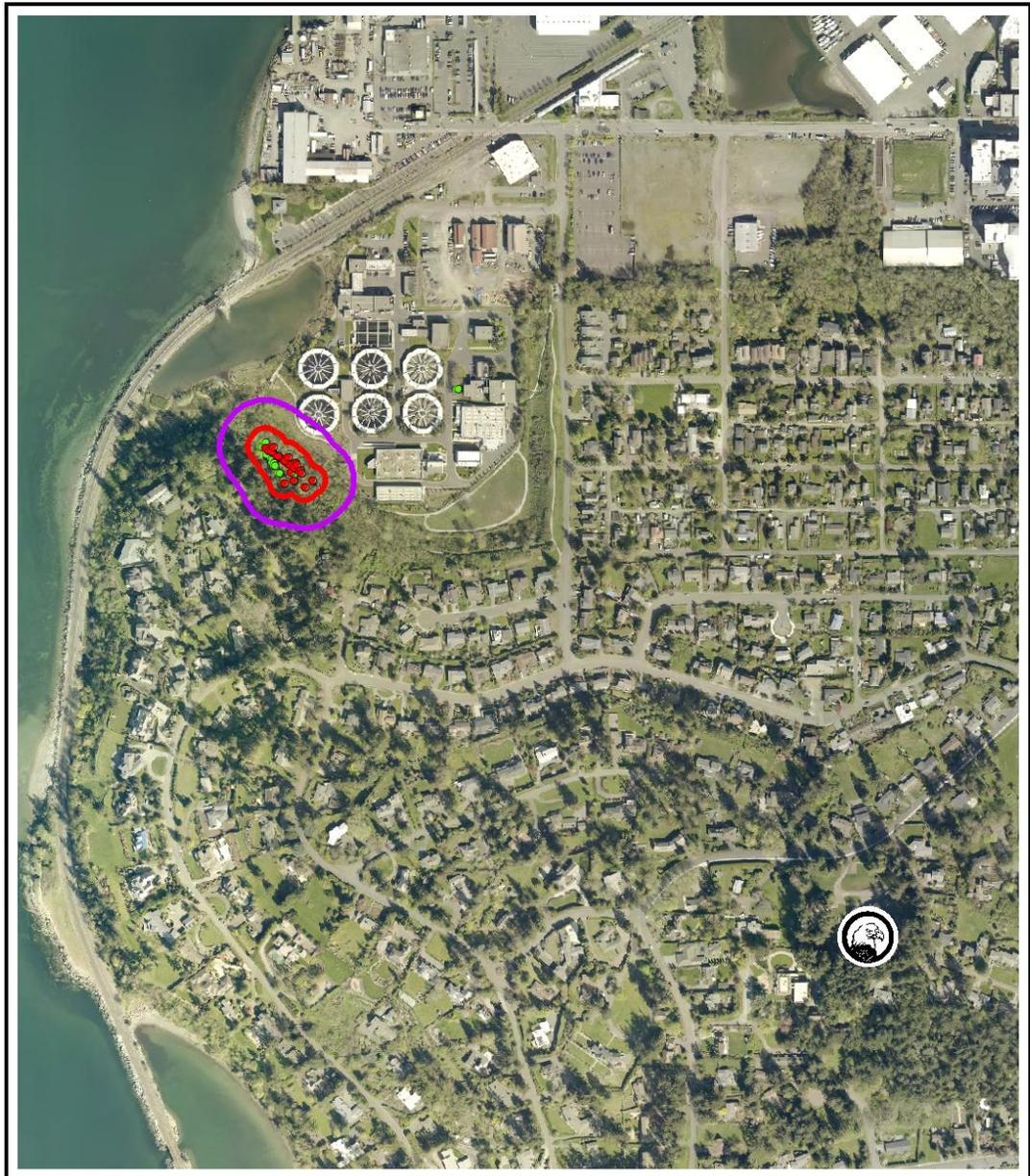
No eagle incursions were observed or reported in the heron colony in 2018.

The status of Bald Eagles in this region is not known, due to the discontinuation of Bald Eagle monitoring by WDFW about 15 years ago. Due to the success of the Bald Eagle population and its rebound following near extinction in certain parts of their range, the species was delisted from the Federal Endangered Species Act in 2007, followed by down listing 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 under the Washington State Bald Eagle Protection Rules (WAC 232-12-292) and local Critical Area guidelines.

The illustrated aerial photograph below Figure 5 provides the location of the nearest known Bald Eagle nest in proximity to the Post Point heron colony. This nest no longer appears to be active.

Figure 5: Bald Eagle Nest Location and Heron Colony

POST POINT HERON COLONY 2018



KEY:

● 2018 Active Nest Trees

● Previous Nest Trees



Colony Core Area



100ft Non-Disturbance Buffer



Bald Eagle Nest Location



April 2016 Air Photo
City of Bellingham

0 250 500
Feet

Other Disturbance

For the 2018 nesting season, no significant disturbances in the colony or at the foraging areas were observed by the biologist or reported. However, there is always some human/heron interaction along the shoreline at Marine Park and possibly in other foraging areas. Herons using the shoreline of Marine Park and Post Point are vulnerable to people, dogs and water-sports enthusiasts utilizing this area. It is difficult to determine the impact these interactions have on the herons, however, with greater public education serious impacts can be avoided.

Every Memorial Day weekend, the Ski to Sea Race, an international competitive event, finishes at Marine Park and stages associated festivities in Fairhaven. This multi-leg relay race event involves 350 teams and 1000 volunteers. As a result, the Post Point, Marine Park area is inundated with people, temporary structures and equipment on race day.

A disturbance to herons foraging along the shoreline at Marine Park during Ski to Sea is possible due to noise and human activity related to the race finish line located at Marine Park, and the last leg of the race being sea kayak which beach Marine Park. With hundreds of race-day fans watching from the shoreline, loud music, and boats, Marine Park is not a favorable place for herons attempting to feed. However, direct disturbance to herons is dependent on timing, tidal stage and access to the intertidal area for feeding. The heron colony seems to be unaffected due to the distance from the activities.

For the 2018 Ski to Sea race day May 27, 2018, Tami DuBow was at Marine Park to make observations until noon. The tides for the day included a morning low of -0.17 ft at 10:47 am and a high of 7.4 ft at 5:58 pm. Due to the morning low tide the herons were able to maximize their feeding on the ebb tide before noon. At 10 am a total of 16 herons and 3 families of Canada Geese were present on the foraging grounds from Marine Park south to Post Point, loud music was playing from the Ski to Sea finish line area, 7 people were also on the beach (no dogs), along with an occasionally kayaker away from the shore paddling south. Close to 11:00 am a train passed, flushing 7 heron temporarily – then returned to feeding. At 11:24 am a helicopter flew over and no heron responded. Between 11:30 and 12:00 noon all but 3 heron remained on the shoreline. At noon the flooding tide had covered most of the feeding area and nearly reached the riprap. At that time more people were gathering as the racers were expected to start arriving at 1:00 pm. Due to the early low tide no direct disturbance to the herons was recorded during the monitoring period.

Looking ahead, the 2019 Ski to Sea Race is scheduled for May 26 and the low tide (1.28 ft) will be at 5:30 pm. This means that the ebb tide – the best time for heron feeding will be at the peak of the race returns at Marine Park. Due to this timing and potential conflict with herons, it would be recommended that the beach to the south of Marine Park be temporarily fenced off to spectators.



Heron feeding on shoreline south of Marine Park May 27, 2018 photo by Tami Dubow



Aerial view of Ski to Sea finish line at Marine Park - photo courtesy of skitosea.com

NEST SURVEY & 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 most accurate nest count.

Note: In most heron colonies not all nests are active or successful in fledging young. A simple count of nests at the end of a breeding season does not represent the actual number of active or successful nests, so colony monitoring during the nesting season is an essential component of determining a colony's status.

During each annual nest count, each nest tree is tagged or existing tags are read, 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 in a database.

A record of nest tree locations and nest numbers per tree is also made and updated in the autumn of each year. All nest trees are assessed, tagged and then added to a database of nest trees present in the colony. A map, illustrating the nest trees and locations in the heronry, is updated annually (Figure 6).

For 2018 a complete colony assessment and mapping was completed December 12 and 13, 2018. All nest trees were evaluated, new nest trees tagged and data recorded by Tami DuBow. The City of Bellingham provided a mapping update using GPS to map new nest tree locations. The updated information for 2018 is provided in this report.

The results of the 2018 colony assessment are:

- Total nest trees = 22
- Total new nest trees = 7
- Total nests (during the 2018 nesting season) = 44
- Total active nests = 44
- Total nests lost during the season = 3 (fell out of trees)
- Total nests successfully fledging young = 41

The total number of nest trees has increased for 2018. The high nesting concentration in certain trees has continued from 2017. This year 22 nests or 50% of the total nests were located in only 5 nest trees, or 23% of the total nest trees. These trees held 3-7 nests each. In 2017, 26 nests or 74% of the total nests were located in 8 trees or 54% of the total nest trees, each of which held 3-6 nests each. This concentration increases the density of the core nesting area. All high density nest trees are red alder.



In review of previous years (Table 6), the colony started in 2000 with 6 nests in 5 nest trees and grew for the next 6 years to a high in 2006 of 37 nests.

In 2007 the colony declined slightly, followed by two years of complete colony failure. The failures of 2008-2009 were mid-season following the reoccupation and nesting of the herons. This was likely due to Bald Eagle depredation.

Following two failed nesting seasons (2008-2009), in 2010, the colony rebounded with 13 active nests, all of which fledged young and the colony has gradually grown every year except 2013.

In past 4 years the colony has grown at a rate between 19%- 23% per year. In 2018, the colony jumped by 32% over 2017. The Post Point heron colony now has 44 nests which has exceeded its all time high nest count of 37 in 2006.

The following is a summary of nests and nest trees since 2000.

Table 7: Post Point Heron Colony Annual Nest Count

Year	Total number of nests	Total number of nest trees	Percentage change from previous year (# of total nests)
2000	6	5	----
2001	8 estimated	6 estimated	+33%
2002	10	6	+25%
2003	14	8	+40%
2004	19	10	+36%
2005	31	10	+63%
2006	37	15	+19%
2007	27	12	-27%
2008	17 active but failed mid-season	9	-37%
2009	11 active but failed mid-season	8	-35%
2010	13 active	9	+44%
2011	16 active, 1 not active	12	+23%
2012	17 active, 1 not active	13	+6%
2013	17 active, 1 not active	14	0
2014	21 active – all active	14	+23%
2015	25 active -24 successfully fledge young	15	+19%
2016	29 active – 24 successfully fledge young	16	+16%
2017	35 active and successful	18	+20%
2018	44 active – 41 successfully fledge young	22	+32%

Colony Mapping

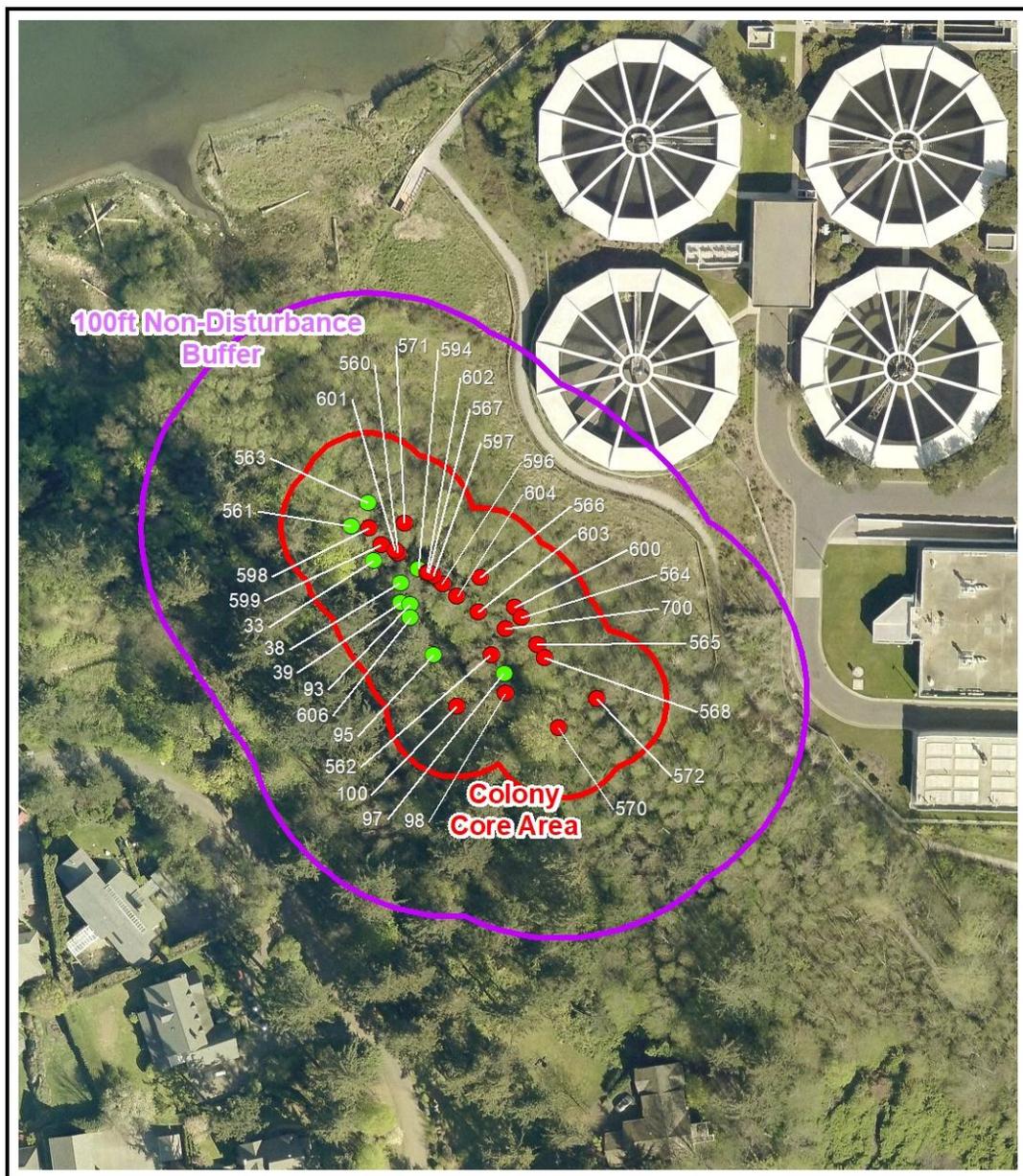
A colony map update was completed in December 2018, by Chris Behee, GIS Specialist for the City of Bellingham. The detailed colony map (Figure 6) illustrates the colony, its location on the landscape, the core area, nest tree location and nest tree number. The nest tree locations were also updated by the City of Bellingham in December 2018. The base used for the colony maps is the 2016 aerial photo.

The 2018 colony map (Figure 6) illustrates all nest trees in the colony, including those used in past years (green) and those active in 2018 (red). The colony perimeter was adjusted to accommodate the new nest trees.

The colony core area, as indicated on the map, constitutes the actual nesting area, and is calculated 50 feet laterally from the base of the outermost nest trees. This core area accommodates the variance in tree canopy and varied nest locations within that canopy area. GPS readings of each tree are taken at the base of the main stem. The core area is about 1 acre in size, but may vary year to year. A 100 foot buffer measured from the core area is illustrated as the non-disturbance area around the colony. This buffer was created as the minimum no-entry/ no disturbance area during the breeding season (2003 Post Point Heron Colony Management Plan). This buffer however does not represent or conform to current WDFW buffer or setback requirements for construction or development.

Figure 6: Colony Map 2018 Detail

POST POINT HERON COLONY 2018

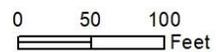


KEY:

- 2018 Active Nest Trees
- Previous Nest Trees



April 2016 Air Photo
City of Bellingham



Note: 28 of 33 tagged tree locations have been located by PW Survey staff in 2013 and 2018. Five additional trees (2014-2017) were located in the field by Nahkeeta NW and/or City Planning staff by triangulating between previously-mapped trees.

COLONY DYNAMICS

The Post Point Heron Colony is approaching 20 years in this location. Looking back, the heron colony experienced growth in its first six years, then for unknown reasons declined, failed, and then rebounded in 2010. Between 2000 and 2006, the colony expanded from 6 to 37 nests. During this period the growth rate was approximately 36% annually. In 2007 the colony declined and that trend continued through 2009. Although the colony was active in 2008 and 2009, adult heron abandoned the colony and failed to fledge young. In 2010, the colony rebounded and in 2011 and 2012 the colony continued to be successful with incremental growth. However, there seemed to be some instability and in 2013 no change occurred. In 2014 the colony started steady growth of 4 nests per year for four seasons. As of 2018, the colony has not only rebounded, but has jumped its historic high of 37 active nests from 2006 to 44 nests and fledged nearly 100 young this year.

The early growth of the colony indicated the annual influx of new breeding adults and likely return of previous fledglings to breed once reaching maturity (2-3 years of age). Based on 2005 fledging numbers, the predicted return of 30 young breeders did not occur, instead approximately 20 heron failed to return to the colony to breed in 2007. In 2008, the return of adult heron to the colony was only half of the previous year and that repeated in 2009. The decline in breeding numbers in 2007 was likely related, in part, to high mortality resulting from harsh conditions and hurricane force winds experienced during 2006-2007 winter months, as well as other environmental stressors impacting heron fitness and survival. Declines and failures in 2008-2009 were related in-part to depredation by Bald Eagles, but other factors were also likely involved, including weather, water temperature, prey availability, and adult heron health/fitness. Known declines at other colonies in the Salish Sea were also reported in 2008 and reflect the need for region-wide reporting and tracking of colonies.

2010 to 2012 marked a positive upturn for the Post Point heron colony. A minor increase in the number of nests and successful fledging of young proved to be an important turn around for the colony. The lack of Bald Eagle incursions during the 2010 season contributed to the nesting success. The mid-season loss of viable eggs and young from eagle depredation in 2011 was expected to be devastating to an already stressed colony, however, the colony rebounded with a second nesting attempt and successfully fledged young from all active nests. With no depredation or other problems in 2012, the colony stabilized and produced young.

In 2013 through mid-2014, the nearby PPWTP construction, increased noise and large scale landscape changes and general human disturbance. Declines at the colony were expected. Instead, the colony maintained productivity during both seasons and fledged young in condensed nesting periods. Growth in the colony in 2014 was slight but promising.

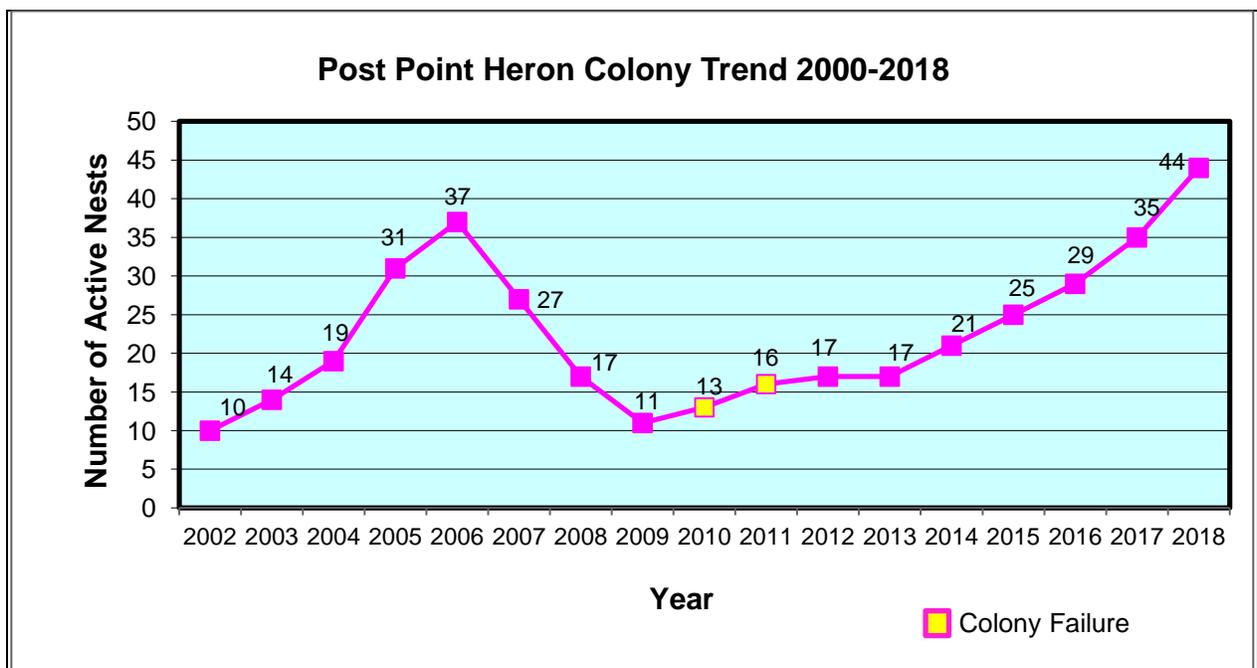
Both 2015 and 2016 proved to be a successful with growth, high productivity and successful fledging of young. Starting from a mild winter, the herons returned and nested in larger numbers than the past 8-9 years. The lack of construction disturbance and absence of Bald Eagle depredation proved favorable for the herons. As a result the heron colony grew by 19% in 2015, 16% in 2016 and 20% in 2017. New nests were built and nest trees were utilized. Higher productivity in 2015 with 2.8 young per nest was above normal, followed by two normal years with productivity in 2016 at 2.3 young per nest and 2017 at 2.5 young per nest.

This year, 2018, the colony grew by 32% from 2017 with the addition of 9 new nests, totaling 44 active nests. This total exceeds the historic high nest count for the colony of 37 in 2006 and now sets a new record. Of the total nests, 41 produced young, resulting in 2.4 young per nest

productivity. Overall the 2018 heron nesting season was successful and notable in terms of growth.

The 2018 growth of the Post Point colony was likely augmented by the displacement of herons from the Samish Island heron colony which abandoned in 2017. The Samish Island heron colony was one of the oldest, continuously active heronries in the region. Records indicate that the colony was active for at least 80 years, and was one of the largest nesting sites in the region, averaging 250-300 active nests annually. Herons displaced from Samish Island have likely dispersed throughout the region, explaining the sudden growth in existing colonies.

Figure 7: Post Point Heron Colony Trend



MANAGEMENT AND STEWARDSHIP

The Post Point Heron Colony was established in 2000 at its current location. Herons have occupied and nested at this site for 19 seasons. During this time, the heron colony has grown, declined, abandoned and rebounded and has produced young for 17 out of the 19 years. The continued management and stewardship is vital to maintaining this critical wildlife area in the City of Bellingham.

With the Post Point Wastewater Treatment Plant Expansion completed, a new clarifier and public trail are now located less than 100 feet from the nest area. In addition to a new built environment in close proximity of the heron colony, the expanded habitat around the lagoon and reduced public access provides important buffer to the west. Above the colony to the south, the habitat remains undeveloped to Shorewood Dr., providing a vital buffer, screening and wind protection.

Recommendations for 2019 management and stewardship of the Post Point Great Blue Heron Colony are as follows:

- Continue routine annual monitoring of the Post Point Heron Colony.
- Record and report any disturbance to herons in the colony or foraging areas.
- Limit disturbance to, or loss of, associated forest and upland habitat around the colony.
- Purchase or permanently protect additional forest buffer and habitat area associated with the colony, particularly vital buffer above the colony to Shorewood Dr.
- Protect the Post Point nearshore foraging habitat from human recreational disturbance by posting educational signage at Marine Park during nesting season - including the lagoon and outer shoreline intertidal and eelgrass area.
- Repeat a comprehensive foraging survey around Bellingham Bay and Chuckanut Bay to document current heron foraging areas.
- Monitor Bald Eagle activity near the colony.
- Request that the City of Bellingham install and maintain a webcam in the colony for on-going education and future monitoring.
- Work with Ski to Sea organizers to avoid disturbance to herons.
- Define the Post Point Heron Colony as a no-fly-zone for drones.
- Update Post Point Heron Colony Management Plan

In 2003, the Post Point Heron Colony Management Plan was prepared for the City of Bellingham. The plan provided background information, regulatory overview, status of the colony and recommendations. However, this plan is now outdated due to changes over time, and does not reflect WDFW management guidelines or CAO requirements. Given the age of the management plan and more recent 2012-2014 PPWTP construction and changes to the heron habitat, this management plan requires updating.

An assessment of foraging areas and documentation of prey species and seasonal occurrence is needed to better understand their relationship with the heron colony. No survey of nearshore heron prey species in Puget Sound has been made and is needed to understand the heron/prey dynamic. Documentation of prey concentrations would also help direct conservation of foraging areas. Continued observation of foraging areas during the breeding season is also essential due to the dependence of the colony's success on these areas.

In addition, inclusion or support for regional heron colony monitoring would contribute significantly to the understanding, determination of trends and tracking of the heron population as a whole. With this additional information, individual heron colony fluctuations and effects on nearby colonies can be better understood and tracked over time.

With the growing use of drones, by both professionals and the general public, has created an urgent need for public agencies to set rules of use and define areas where drones should be restricted. Heron colonies, such as Post Point, are vulnerable to disturbance by drones and their use should be restricted in these areas. It is requested that the City of Bellingham establish a drone no-fly-zone around the Post Point heron colony.

The City of Bellingham's cooperation in efforts to educate and inform the public particularly for neighbors, shoreline user groups, and Sea to Ski organizers is needed as an on-going effort to inform users and user groups of sensitive heron habitat, and the role they can play to protect these areas for herons and other wildlife.

CONCLUSION

This Annual Report provides the final summary of the 2018 heron nesting season and results of all monitoring activities. A total of 27 monitoring visits were made to the colony this season.

In 2018 the Post Point Great Blue Heron Colony has succeeded in producing nearly 100 young and contributing to the perpetuation of this species in the Salish Sea. For the 19th season, the heron's return, growth, and productivity are testament to the heron's tenacity and high site fidelity.

The Post Point herons returned to the colony later than normal in 2018 due to severe winter conditions and snow in February, similar to 2017. The herons were unsettled until mid-March at which time they reoccupied the colony and began nesting in earnest.

The 2018 nesting season, from March proceeded into August without disturbance or disruption. The Post Point heron occupied 22 nest trees and a total of 44 active nests. Three nests were lost during the season. The remaining 41 active nests supported a total of 97 young, averaging 2.4 young per nest, which is within the normal productivity range for this region. The majority of the heron, adults and young, dispersed from the colony between July 6 and August 2, with 4 nests remaining active into mid-August. Overall, the 2018 was a success for the Post Point heron colony.

Nahkeeta Northwest would like to extend our gratitude to the City of Bellingham for supporting the conservation of the Post Point Great Blue Heron Colony and the individuals that have supported monitoring of the colony site. We would like to extend a special thanks to Karl Lowry, the PPWTP Supervisor, who has gone out of his way to support our efforts and help the herons.

We would also like to express a special thank you to Chris Behee, GIS Specialist with the City of Bellingham, for providing his expertise in mapping the colony and nest locations and creating accurate updated maps. We greatly appreciate photographs of the Post Point herons provided by Alan Fritzberg and others by Mike Hamilton, Tami DuBow and the Starr Family. Finally, we acknowledge the support of neighbors and citizens who shared useful information related to the herons and heronry.



Photo by Alan Fritzberg

ATTACHMENTS

Post Point Great Blue Heron Colony Annual Chronology



Inside the Post Point Heronry

Photo by A. Eissinger

Post Point Great Blue Heron Colony

Colony Chronology (2017 update)

Pre 1999:

- Post Point bluff utilized by herons for roosting and possible nesting
- Post Point Lagoon and nearby shoreline utilized for foraging

1999

- Neighbors report heron nesting activity at Post Point (1-2 nests unconfirmed)
- Chuckanut heron colony abandon from Heron Estates
- Herons reported attempting to build nests in cottonwood north of Viewcrest, nesting attempt failed

2000

- Herons establish nesting colony in present location at Post Point
- Total 6 nests in 5 trees and successfully fledge young

2001

- Herons continue to nest at Post Point (no data available - 8 nests estimated)
- Pedestrian trail moved away from base of colony to 111 feet northeast

2002

- Herons continue to nest at Post Point increasing to 10 nests in 6 trees
- 66% growth from 2000 (estimated 25% annual growth from 2001)

2003

- Herons nesting at Post Point increase to 14 nests in 8 nest trees
- 133% growth from 2000 (40% annual growth from 2002)

2004

- Herons successfully nesting at Post Point for 5th year with 19 nests in 10 nest trees
- 216% growth from 2000 (36% annual growth from 2003)

2005

- Herons successfully nesting at Post Point for 6th year.
 - 56-58 breeding adults.
 - Staging reported February 11 with nesting commencing February 23.
 - Hatching confirmed April 19
 - Nesting/fledging completed August 26.
 - 28 week breeding cycle.
 - Productivity: mean 2.5 young per nest = estimated 77 young fledged
 - Total of 31 nests in 10 nest trees (including 1 blown down nest)
 - 416% growth from 2000 (63% annual growth from 2004)
 - Average growth rate = 39.4% annually over 5 years.
-

2006

- Herons successfully nesting at Post Point for 7th year.
- 72-74 breeding adults.
- Staging reported March 1 with nesting commencing March 15.
- Hatching confirmed May 3
- Nesting/fledging completed August 11.
- 23 week breeding cycle.
- Productivity: mean 2.6 young per nest = estimated 91 young fledged
- Total of 37 nests in 15 nest trees
- 19% annual growth from 2005
- Average growth rate = 36% annually over 6 years.

2007

- Winter storm damage: loss of 5 trees and 7 nests
- Herons successfully nesting at Post Point for 8th year.
- ~54 breeding adults.
- Colony reoccupied Feb. 18
- Incubation started March 12
- Hatching confirmed April 26
- Nesting/fledging completed July 26.
- 22 week breeding cycle.
- Productivity: mean 2.6 young per nest = estimated 70 young fledged
- Total of 27 nests in 12 nest trees
- 27% nesting decline from 2006
- Average growth rate = 35% annually over 7 years.

2008

- Herons return to nest at Post Point for 9th year.
- Colony reoccupied March 6
- ~34 breeding adults
- Incubation started March 15
- First hatching confirmed April 26
- Early nests failed late-May
- Second nesting attempt June
- Colony failure late-June
- Colony abandonment confirmed July 1 – no young fledged
- Total of 17 nests in 9 nest trees
- 37% nesting decline from 2007 – no productivity

2009

- Herons return to nest at Post Point for 10th year.
 - Colony reoccupied March 6
 - ~18 breeding adults - 11 nests active (2 unable to attract mates)
 - Incubation started April 1
 - First hatching confirmed May 3
 - Bald Eagle depredation observed May 27
 - 2-3 nests remain active May 29
 - Colony abandonment confirmed June 12 – no young fledged
 - Total of 9 nests utilized in 8 nest trees
 - 35% nesting decline from 2008 – no productivity
-

2010

- Herons return to nest at Post Point for 11th year.
- Staging Feb 5
- Colony reoccupied March 6
- 22 breeding adults – 13 nests active (max. 15 nests visible)
- Incubation started March 19
- First hatching confirmed April 27
- Productivity ~3 young/nest
- No Bald Eagle depredation observed or reported
- Fledging late June – early July, fledging complete July 12
- Total of 13 active nests utilized in 9 nest trees
- 2 added nests, positive change from 2008-09 – 100% change in productivity!

2011

- Herons return to nest at Post Point for 12th year.
- Staging in colony February 10 – 5 nests occupied by single adult
- Winter storm and snow force heron out of colony February 25
- Staging on clarifiers March 3
- Colony reoccupied March 7 – 7 nests occupied
- Early Incubation started March 19
- Total 16 nests active (max. 17 nests visible) April 9
- Bald Eagle incursions April 26-27 eggs and young viability lost
- Re-nesting begins May 1 – 16 nests remain occupied
- Egg laying/incubation underway May 5
- No Bald Eagle incursions observed or reported
- First hatching confirmed June 1
- Rearing June/July
- Productivity ~3 young/nest
- Fledging late July – early August, fledging complete August 14 (one month later than 2010)
- Total of 16 active nests utilized in 13 nest trees (2 new nest trees)
- 3 added nests, positive change from 2010 = +23%

2012

- Herons return to nest at Post Point for 13th season.
 - Staging in colony February 3-22, w/ 1-5 nests occupied by single adults
 - Winter storm and snow force most heron out of colony February 29
 - Colony reoccupied March 3 – 7 nests occupied, 15 nests visible
 - Pairing, courtship begin March 8
 - Incubation started March 23
 - Total 16 nests active (max. 11 nests visible) April
 - Possible Bald Eagle incursion April 25, no impact observed
 - Late April – very poor weather obscuring views and extending brooding
 - First hatching approximately May 1
 - Rearing May-June
 - First fledglings observed June 26
 - Productivity ~2.4 young/nest
 - Total of 17 active nests utilized in 13 nest trees (2 new nest trees)
 - 3 added nests, positive change from 2011 = +6%
-

2013

- Post Point Waste Water Treatment Facility expansion underway, construction occurring 100+ feet from colony edge.
- Herons return to nest at Post Point for 14th season.
- Staging in fir tree west of colony 8-10 herons Feb 1.
- Colony Reoccupation: February 26, w/ 10 nests occupied by single adults.
- Pairing, courtship begin March 1.
- Onset of egg laying/incubation March 14.
- Bald Eagle incursion March 22, possible egg loss 1-3 nests impacted.
- Total 16 nests active April.
- First hatching approximately April 15.
- Rearing April-May-June
- First fledgling observed June 10, most fledging June 25-July 10.
- Productivity 2.37 young/nest
- Total of 17 active nests utilized in 14 nest trees

2014

- Post Point Waste Water Treatment Facility expansion construction continued, occurring 100+ feet from colony edge, plus a new trail <100 feet.
- Herons return to nest at Post Point for 15th season.
- Colony Reoccupation: February 20-26, w/ 4-9 nests occupied.
- Late winter storm – heron abandon site
- March 3, heron begin to reoccupy colony
- Pairing, courtship begin March 15, 11 nests occupied.
- Early egg laying/incubation March 17 (2 nests only).
- Available nests saturated (17 nests occupied) March 27
- Onset of egg laying/incubation 10+ nests April 1
- New nest added – total 21 active nests April 17
- First hatching approximately April 21.
- Rearing late April-May-June
- PPWTP Expansion Completed June 1
- First fledgling observed June 11, most fledging July 1-15.
- Season End August 1
- Productivity 2.5 young/nest
- Total of 21 active nests utilized in 14 nest trees (1 new nest tree)
- 4 new nests, positive change from 2013 = 24%

2015

- Herons return to nest at Post Point for 16th season.
 - Colony Reoccupation: February 9, w/ 11 nests occupied.
 - Pairing, courtship begin February 15 (one month earlier than 2014), 11 nests occupied.
 - Early egg laying/incubation March 16 (5 nests), 20 nests occupied.
 - Onset of incubation March 29.
 - New nests added – April – May, total nests 25.
 - First hatching approximately April 12.
 - Rearing April-May-June-July
 - Peak fledgling June 27-July 9.
 - All young fledged July 9, except 3 nests. Final nest fledged after Aug. 2.
-

- Productivity 2.8 young/nest
- Total of 25 active nests utilized in 15 nest trees (1 new nest tree)
- Positive change from 2014 = 19%

2016

- Herons return to nest at Post Point for 17th season.
- Heron return to colony January 30, and then leave abruptly mid-February.
- Colony Reoccupation: March 2 w/ 11 nests occupied.
- Pairing, courtship begin March 11, 17 nests occupied.
- Early egg laying/incubation March 23 (3 nests), 19 nests occupied.
- Onset of incubation March 30.
- New nests added – April, total active nests 29.
- First hatching approximately April 21.
- Rearing late April-May-June-July
- Peak fledgling July 1-July 9.
- All young fledged July 15, except 3 nests. Final nests fledge July 17-23.
- Productivity 2.3 young/nest
- Total of 29 active nests utilized in 16 nest trees (2 new nest trees) – 24 nests successful in fledging young
- Positive change from 2015 = 16%

2017

- Herons return to nest at Post Point for 18th season.
- Heron return to colony delayed due to extended winter and snow in February
- Heron present in colony Feb 22 and March 1 – no nesting
- Herons absent from colony – March 8
- Colony Reoccupation, pairing and courtship: March 15 – 23 heron w/ 18 nests occupied.
- Early egg laying/poss. Incubation(1 nst) March 22 (same as 2016), 24 nests occupied.
- Onset of incubation - 20 nests as of April 12, 30 nests occupied.
- New nests added – April, total active nests =33.
- First hatching April 26-May 3.
- Rearing May-June-July (2 nests into Aug) – 2 new nest obs, total active nests =35
- Peak fledgling July 12-July 19.
- All young fledged July 26, except 5 nests. Final nests fledge July 29-Aug 6 except one late nest.
- Productivity 2.5 young/nest
- Total of 35 active nests utilized in 18 nest trees
- Positive change from 2016 = +20%

2018

- Herons return to nest at Post Point for 19th season.
 - Heron return to colony delayed due to winter conditions in February
 - Heron return March 8
 - Colony Reoccupation, March 14 with 20 nests occupied
 - Early egg laying and early onset of incubation March 29
 - Early hatching April 26 -
 - New nests added – April-May, total active nests =44
 - Rearing May-June-July – 3 nests lost, total active nests =41
-

- Fledging start July 6
- Peak fledgling July 13-Aug 2.
- All young fledged Aug 2, except 4 nests.
- Season complete Aug 18
- Total young = 97, Productivity 2.4 young/nest from 41 nests
- Total of 44 active nests utilized in 22 nest trees
- Positive change from 2017 = +32%



Heron Flyover
Photo by Mike Hamilton