

# Post Point Heron Colony

## 2014 Monitoring - Annual Report

*prepared for:*

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Department of Public Works**

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- 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, on the nearshore bluff southwest of the Post Point Wastewater Treatment Plant. The colony is located 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, grassland 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 bluff 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.

Beginning in 2012, the Post Point Wastewater Treatment Plant, adjacent to the heron colony, has been under a major expansion that continued to June 2014. The related construction, addition of several large structures and associated activities, resulted in significant noise, disturbance, changes to the landscape, and some loss of habitat buffer between the colony and the facility. A construction project of this size, within 100+ feet of an active heron colony is unprecedented. Given that sound abatement, screening or other mitigating measures were not possible due to the scale and proximity of the construction to the colony, concern for the viability of the heron's nesting colony and reproduction were shared by all stakeholders. As a result, intensive monitoring of the colony was employed, and close, on-going communication between project manager and biologist was maintained to inform the process.

The results of the 2014 Post Point Great Blue Heron Colony Annual Monitoring are detailed in this annual update. Monitoring of the site spanned 6 months and included 47 site visits through the nesting season. Between February and July the herons reoccupied the colony, nested, hatched and reared young to fledging. It was a particularly successful year with growth of the colony and good productivity, despite construction continuing nearby for the second consecutive year.

A total of 21 nests were active in 2014, an increase of 4 nests, nearly 24%, from the 17 total in 2013 and 2012. Changes in the colony are expected. In the past, from 2000 to 2007, the heron colony expanded annually at a rate of approximately 35%. In 2007 the colony declined 27%, followed by colony abandonment in 2008 and 2009 due to Bald Eagle depredation. Bald Eagle incursions continued in 2010 and 2011, however the herons successfully nested and fledged young those seasons, and increased active nest numbers. Eagle depredation did not occur in 2012 and only minor incidences were reported in 2013, during which time active nest numbers remained steady. The herons in 2014 experienced no measurable disturbances or problems, resulting in a successful nesting season and growth in the colony.

## INTRODUCTION

The Post Point Great Blue Heron Colony Annual Report details the 2014 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 heronry is the only known heron nesting site in the City of Bellingham and is considered a sensitive breeding habitat area. The colony is small, yet unique within the city and has been strategically important to 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 requiring the protection of both the herons and their habitat. Heron 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 near heron colonies.

The City of Bellingham Public Works has supported the conservation of the Post Point Great Blue Heron Colony site by developing a management plan (2003), establishing a scientific baseline (2005) and sustaining professional monitoring of the colony, which has been ongoing since 2005. However, due to the completion of the Post Point Wastewater Treatment Plant expansion, and subsequent landscape changes and infringement of buffers, the original management plan has become obsolete and requires updating.

The expansion of the Post Point Wastewater Treatment Plant (PPWTP) during 2012-2014, presented unprecedented levels of construction related noise, equipment use and human activity in close proximity to an active heron colony. As a result, monitoring of the herons and their colony was intensified in order to observe the herons closely and recommend adjustments to construction activities if needed.

Monitoring of the Post Point heron colony includes three primary components:

- **general monitoring**, focusing on colony activity, breeding chronology, behavior and disturbance;
- **productivity**, which focuses on nestling numbers and fledgling success; and
- **nest survey**, updating the number of nests, nest trees utilized during the breeding season and assess overall forest health.

Heron foraging observations are also made to document feeding activity. Monitoring usually spans six months but may vary. In addition, Bald Eagles, the heron's primary predator, are also monitored if active in the vicinity of the heron colony. Due to nearby construction, heron behavior was closely monitored, so any indications of disturbance during nesting could be reported and mitigated.

Implementation of monitoring, 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 years experience monitoring Great Blue Herons and is expert in heron ecology, behavior, colony dynamics and stewardship. Her 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.

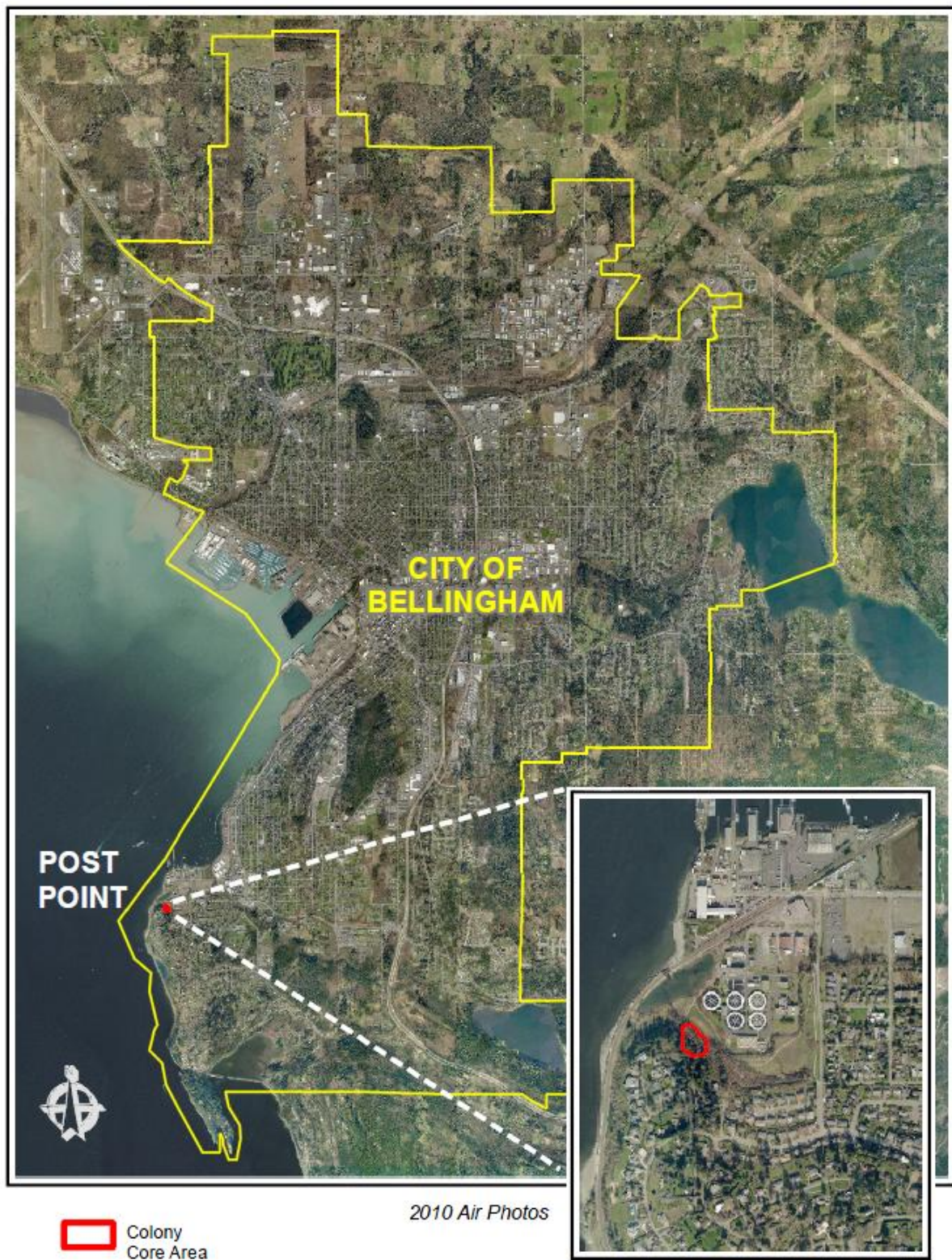
Ms. Eissinger is also the author of the 2003 Post Point Heron Colony Management Plan and 2005 Post Point Heron Colony Baseline Study prepared for the City of Bellingham, Department of Public Works. In addition, the Biologist has assisted in the development of interpretive displays and public education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

Detailed weekly monitoring updates and periodic progress reports submitted to the City of Bellingham, document the heron's nesting activity and any observed disturbances. The point of contact for this project includes the City of Bellingham Department of Public Works Post Point Wastewater Treatment Plant Operations Supervisor, Larry Bateman, and Post Point Wastewater Treatment Plant Expansion Project Manager, Freeman Anthony, P.E.



New clarifier and trail – view from base of heron colony      AE 2014

Figure 1  
Post Point Heron Colony Location



## HERON HABITAT, HABITAT UTILIZATION and CHANGES

Historically, Great Blue Heron would gather and roost year-round in the forested nearshore bluffs of Post Point. This forest habitat provided protection from prevailing winds and weather, with the exception of wintery northeasters. This site occupies a patch of natural forest buffered from growing residential and urban development, providing direct access to foraging areas and field habitats. In 1999 a group of herons were displaced from their nesting colony along Chuckanut Drive (Blue Heron Estates) and the following year settled to nest in the thin band of forest along the north side of Post Point bluff. The heron colony has been present and active since 2000.

Up to 2012, habitat and conditions had remained stable at the Post Point heron colony. Improvements were made to buffer the nesting colony from passive human recreation, and to expand estuarine habitat in the nearby lagoon. However, following the 2012 nesting season, the City of Bellingham began the expansion of the Post Point Wastewater Treatment Plant adjacent to the heron colony and associated habitats. With the plant expansion, the immediate wet meadow habitat was lost and the footprint of the PPWTP was expanded, including a large permanent clarifier structure built just over 100 feet from the nesting colony. In addition to the structure and additional fencing, a public trail was also constructed between the clarifier and the heron colony, allowing public access nearly 60 feet from the nearest nest.

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 is situated along the nearshore bluff at Post Point and provides the structural substrate for seasonal nesting and year-round roosting. Within close proximity of the colony are small patches of grassy fallow field, marine shoreline, protected lagoon, estuary and intertidal area with eelgrass meadows.

The upland forest where the nest colony is located is situated along a historic shoreline bluff. The bluff line allows the herons separation and elevation above the shoreline park and nearby municipal facilities. The forest is mixed second growth containing mature conifer and deciduous trees. The tree species utilized by the herons for nesting have in the past included Pacific paper birch (*Betula papyrifera*), big-leaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*). The nest stand is dominated by alder and Douglas fir (*Pseudotsuga menziesii*). Many of the old nest trees are mature and have died or blown over during the past ten years. As a result, the current nesting only occurs in alder and maple. Douglas fir trees define the bluff and provide a critical overstory and wind break for the colony; they also serve as the primary roost trees for herons and Bald Eagles.

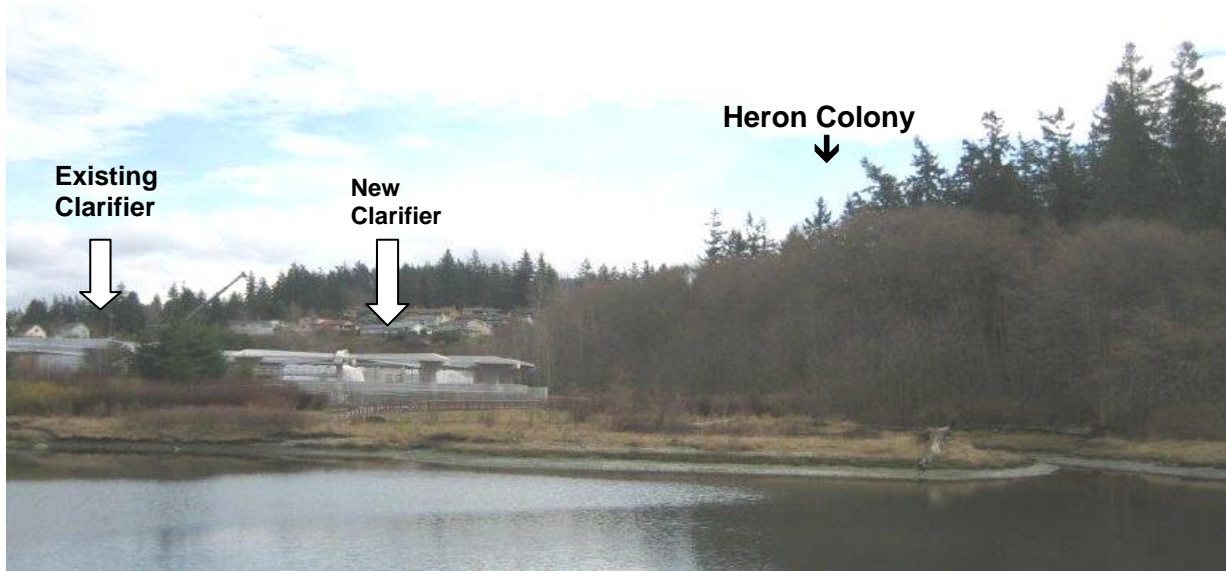
Fallow field habitat, present adjacent to the heron colony at Post Point, is an important habitat for upland heron prey, particularly meadow voles (*Microtus townsendii*), which serve as a vital food source for herons during winter and early nesting season. In addition to the field, the Post Point Lagoon and salt marsh edges also serve as loafing and occasional foraging habitat. The lagoon has also serves as a fledging site for young heron exploring outside the colony. Although these habitats have been identified as important to the herons, 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](#) 2011.

In previous years, the heron's use of the Post Point Wastewater Treatment Plant has been unique. Herons have utilized the top of the clarifiers during staging and occasionally during the breeding season, fledging and winter roosting. However, for the past three years, 2012, 2013 and 2014, no heron have been observed utilized the clarifiers. This disassociation with the PPWTP is likely due to construction activities in and around the facility.

### Post Point Heron Habitat Before and After New Clarifier



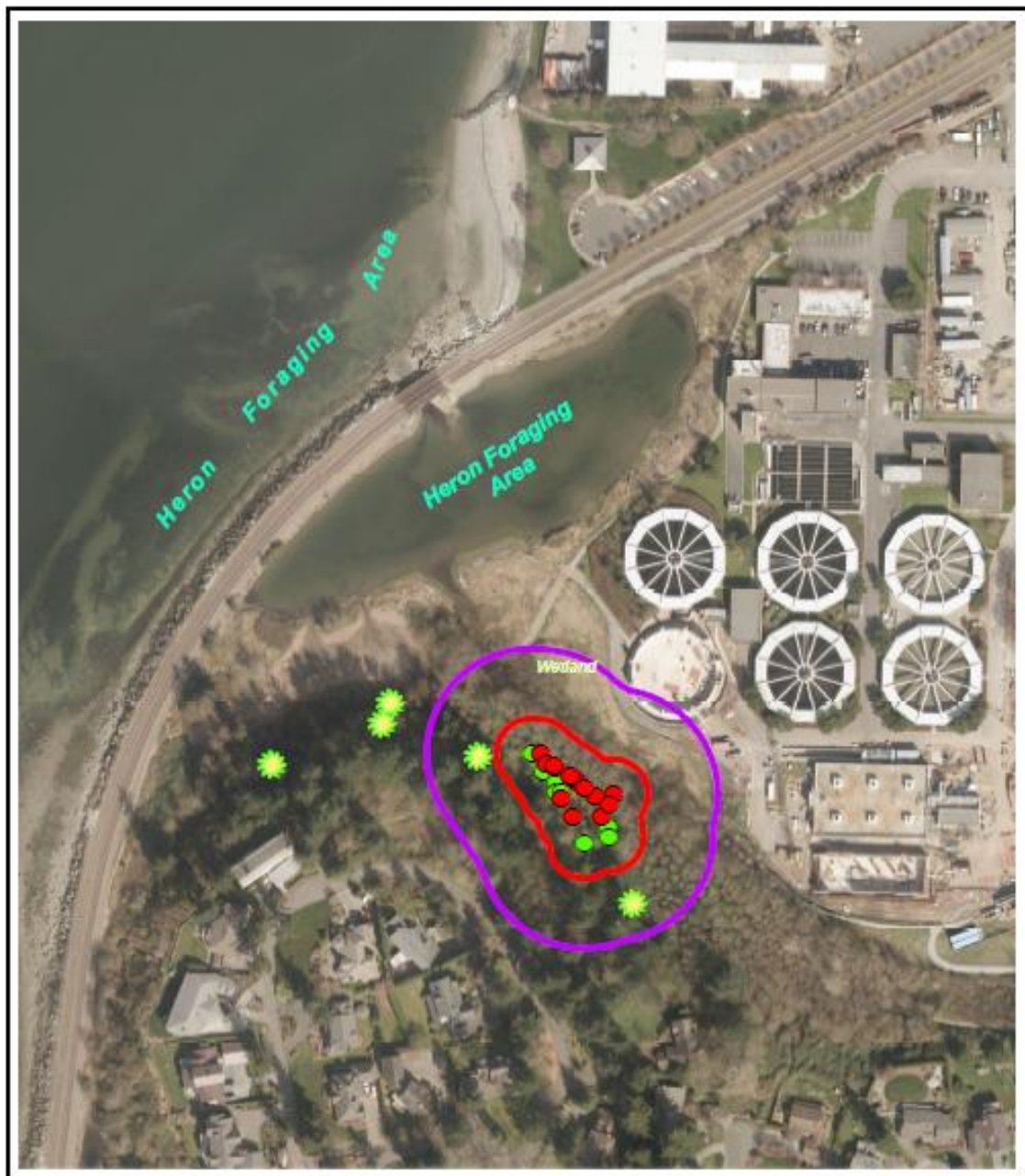
October 2009 AE



March 2014 AE

Figure 2: Colony Map 2014 Update (note new structures under construction 2013)

## POST POINT HERON COLONY 2014



### KEY:

● 2014 Active Nest Trees

● Previous Nest Trees

★ Roost Trees



Colony Core Area



100ft Non-Disturbance Buffer



0 100 200 Feet

March 2013 Air Photo  
City of Bellingham

## 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. Due to environmental changes and human use patterns, a regional foraging area survey needs to be repeated in 2015.

The most productive foraging areas for heron are shallow intertidal with abundant native eelgrass (*Zostera marina*) where prey species 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 and wet meadows mentioned earlier, and freshwater systems including streams, wetlands, lakes and estuaries, which are important for small mammals, amphibians and 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 harbor voles and other small mammals which provide a vital protein source during winter and early spring prior to nesting.



**Heron foraging in eelgrass at Post Point**

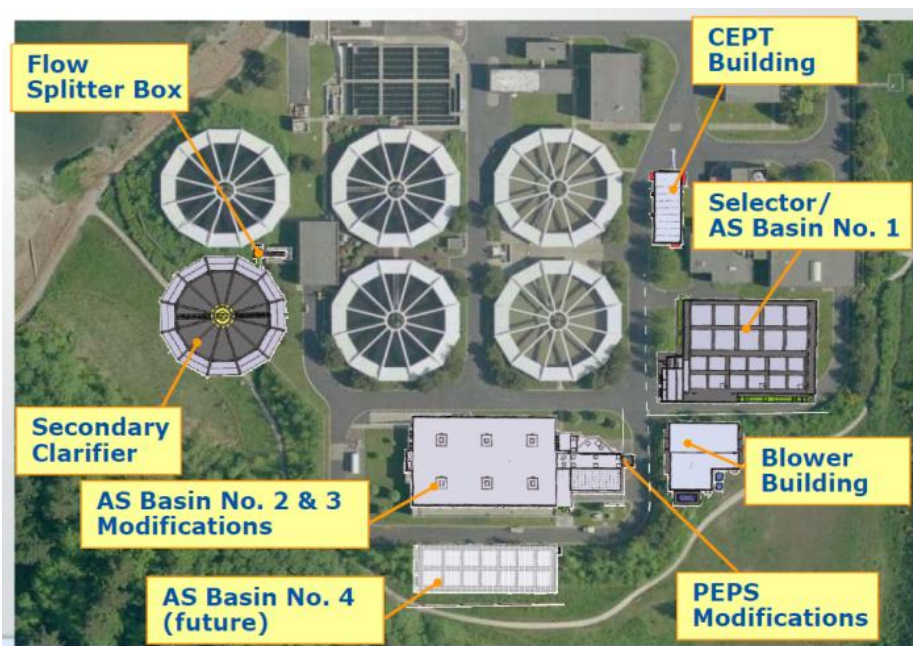


**Fledglings at Post Point Lagoon 6/28/2013 TD**

## POST POINT WASTEWATER TREATMENT PLANT (PPWTP) EXPANSION

The City of Bellingham Public Works Department has completed the Post Point Waste Water Plant (PPWTP) expansion following 2 years of construction. The Post Point facility has provided secondary treatment of waste water since 1993 to the city of Bellingham. Due to the city's population growth, the plant reached its capacity requiring expansion in order to maintain operations to federal and state standards. The project started in July 2012 and completed in June 2014. Detailed project information is available online at: [Post Point Wastewater Treatment Plant Improvements](#).

**Post Point  
Waste Water Plant  
Expansion Plan  
Layout**



The PPWTP expansion dominated activities at Post Point in 2013 and 2014. The project involved construction on 4.4 acres, including the entire south side of the facility, adjacent to the heron colony. With the construction of four large concrete structures, numerous pieces of equipment running simultaneously and a daily workforce of 30-80 personnel, this project constituted major industrial construction.

A construction project of this magnitude in close proximity to an active Great Blue Heron Colony during the breeding season is unprecedented. Major construction activity occurred between 100-800 feet in direct line of sight from the colony, with no screening or shielding, exposing the herons to continuous noise, equipment use and human activity.

As a major construction project, permitting involved environmental review and mitigation, the details of which are online: [Post Point Wastewater Treatment Plant Facilities Planning – Permitting](#).

Guidelines for protection of the heron colony included a timing restriction beginning February 1, which required a 100 foot construction setback from the colony, and monitoring of the colony. No sound measurements were required or limits recommended, nor were there any equipment restrictions. As a result, the on-site biological monitoring was intensified with an emphasis on using the heron's behavioral changes as the primary measure of disturbance and maintaining

close communication with the project manager. Weekly results were provided to Freeman Anthony, Project Manager and Larry Bateman, PPWTP Supervisor. In addition, real-time communication was used if any issue arose related to the construction and herons.

In its first year, the PPWTP expansion project was well underway at the time the herons returned to nest in February 2013. Although the construction was at its peak during the spring and summer of 2013, the herons continued to nest successfully and fledge young in June-July of that year.

In 2014, the construction was at its final stages and greatly reduced in terms of noise, activity and potential disturbance. A new public trail was also built between the new clarifier and the heron colony. The finishing work on structures, the trail, road surfacing and landscaping were all underway as the herons returned to nest in February. Although light construction was occurring in close proximity of the colony, the herons established their nesting for the season and continued successfully to fledge young in July of this year.



**Post Point Wastewater Treatment Plant Completed Expansion June 2014 COB**

## GENERAL MONITORING

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 includes early season, breeding/nesting and foraging. Post-season monitoring takes place following the fledging of young from nests and 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 2014 monitoring of the Post Point heron colony began February 4 and ended July 31. Due to the PPWTP construction, the monitoring schedule was intensified and the number of site visits was increased through June 30, at which time the project was completed. The frequency of visits was twice weekly for a total of 47 site visits during the nesting season.

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.

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

The total duration of the nesting season is usually approximately 6 months, but can vary. In the event that nests fail and herons lay a second clutch of eggs, and subsequently rear those young, the season can be extended by 3 to 4 weeks. In contrast, the 2013 season was condensed to just slightly over 5 months.

In addition to monitoring the actual nesting period, monitoring also includes preseason or early assessment to document the condition of the colony and habitat prior to the heron's arrival, 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.

In addition to the primary monitoring objectives, observations were made and recorded to gauge construction activity and related responses by the heron, and to define any disturbance to individuals or the colony. Heron behavior in and out of the colony was closely observed, as well as nesting activity and success. Potential construction related disturbance included noise, large equipment in use near the colony, human activity and aerial cranes. No sound measurements were specified, however a sound was incidentally measured with a cell phone app and a general range was recorded during each visit.

In addition to the Great Blue Heron, Bald Eagles (*Haliaeetus leucocephalus*) were monitored for their potential nesting activity, presence near the colony, and potential predation on herons. Also, all vertebrate species identified in the vicinity of the colony are recorded. No new species were identified in 2014.



Tami DuBow monitoring on site 2013 and 2014

## 2013 MONITORING RESULTS

For this report monitoring is divided into 4 phases: Early Season, Colony Reoccupation and Early Nesting, 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

The winter of 2013-2014 was drier and colder than average, but did not result in any extreme storm events according to the Office of the Washington State Climatologist. As a result, no storm damage was observed in the Post Point heron colony nest stand, resulting in most nests and nest trees remaining intact from the 2013 nesting season.

In February 2014, a total of 16 nest structures remained in the colony. The colony was checked twice weekly, through February, with no heron present in the colony until February 17, and few heron were in the vicinity. Cold winter weather persisted through much of the month. No classic staging or large staging groups were observed in or around Post Point. Instead, herons filtered into the nest stand and directly to the nests, single males awaiting females to arrive. On February 20, herons began to reoccupy the colony, with 6 herons claiming nests.

Landscaping, trail building and fencing was also taking place less than 100 feet from the colony. Other construction related to the PPWTP expansion was also occurring, although with less noise and intensity than this time last year.

### **Colony Reoccupation and Early Nesting**

Colony reoccupation occurred in two stages. First, in late February, about 10 nests were reoccupied, with at least one nest with a heron pair. However, a late winter storm hit the area with snow, freezing temperatures and northeast wind, forcing all the herons from the colony. At the onset of March, herons started returning to the colony and on March 3, 8 nests were occupied, two with heron pairs.



Adult heron incubating eggs

Through the month of March herons occupied the colony, saturating existing nests, selecting mates, performing courtship rituals and enhancing nests. By the end of March, about 10 pairs had mated and were beginning egg-laying (which takes 5-6 days to complete) and/or incubation. By March 27, 17 nests were occupied and incubation was well underway. Based on the earliest onset of incubation, the first hatching of young is expected about April 15. Although reoccupation of the colony and courtship was somewhat abbreviated, the colony appears healthy, on track and on time for a successful breeding season. A total of 16 monitoring visits were made between February and March.

### **Mid-Season Monitoring: Incubation - Hatching – Rearing**

The mid-season period at the Post Point heron colony started with the usual unsettled weather in April and transitioned to warmer and drier weather conditions in May and June. Earlier rain fall and cool conditions created lush leaf growth on the nest trees, limiting visibility of several nests, however, by relocating closer to the colony, observations of the nests were possible.

For the months of April, May and June, the herons of the Post Point colony continued in their nesting activities without interruption or serious disturbance. A total of 26 monitoring visits were made during this period.

For most of April, the herons were settled into the incubation of their eggs, which is a quiet time in the colony. Also, early this month, late arriving herons built two new nests, increasing the total active nests to 21. These herons got a late start, thus extending the overall nesting season by 2-3 weeks.

Incubation requires 28 days and because eggs are laid asynchronously, hatching of young occurs over about 4-5 days for each nest. With egg-laying and the onset of incubation occurring in the last week of March and the first week of April, a few nests may have started earlier, and some later. Hatching was therefore expected one month following the onset of incubation. On April 17 eggshells were observed under a few nests and the following week early hatching was confirmed. Hatching of heron young continued through the first week of May, and later for the newly built nests.



**Young heron about 3-4 weeks old**

During May, the heron colony quickly transitioned from quiet incubation to the business of rearing of young. Adult heron brood their young initially, and at least one adult stays at the nest protecting and attending the needs of the young. At about 4 weeks of age, the adults start leaving the nest unattended for periods of time to forage. The rearing of young continues for a total of 8 weeks.

On May 27, 3 young heron were observed feeding at Marine Park. The source of the young heron is not known, but based on this early date, they were not from Post Point given that the Post Point young are only 6 weeks or less. Instead the young were possibly from a satellite nest along Padden Creek or nearby.

Rearing of young at the Post Point colony continued through most of June. Adult herons attended and fed their young and maintained their nests as needed, except one nest that began to fall apart with the young were still in it. One dead young was likely the result of this poorly maintained nest.

### **Fledging**

Fledging of young at Post Point began about the third week of June. The young generally fly to the lagoon or the Marine Park shoreline once they leave their nest. They also may take shorter flights around the nest stand before leaving the colony. On June 27, young heron were observed at the shoreline and several nests were missing young, so the onset of fledging was underway, however all nests had young remaining.

Following the initial onset of fledging, young continued leaving nests. The peak of fledging occurred within the first two weeks of July. By July 17, only 6 nests still had young, 4 with 1, and 2 with 2 young. By the end of the month all young had fledged, except one young remaining in one of the late nests; that too was expected to fledge within a day or two. The heron nesting season therefore ended August 1, 2014.



**Young heron about 6 weeks old**



## Post Point Heron Nesting Chronology Summary 2014

- **February:** heron began to return, snow forced heron from the colony.
- **Early March:** reoccupation of the colony, nest repair, pairing.
- **Mid-March:** courtship, nest enhancement, onset of nesting, egg laying and early incubation
- **April:** incubation, late arrivals to colony, early hatching in late April.
- **May:** hatching, brooding of young.
- **June:** rearing, fledging begin late June.
- **July:** fledging peak first 2 weeks of July, fledging continue.
- **August:** August 1, end of season - fledging and dispersal completed.

The total duration of the nesting period at Post Point in 2014 was 22 weeks, compared to 19 weeks in 2013.

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.



**Heron gathering nest material at Post Point**  
A Fritzberg 2013



## PRODUCTIVITY

The productivity of the visible nests within the 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, and is particularly important this year given that the colony is being subjected to significant disturbance from nearby construction activities and has not fully rebounded from colony failures in 2008-2009 and subsequent nest reduction.

The Post Point herons successfully produced young in 2014. The colony's success in 2013 and 2014 is based, in part, on the lack of predatory incursions. With construction nearby, productivity was watched closely through the season. Herons lay four to five eggs per nest and may fledge a maximum of five young, but normally fledge one to three young per nest.

In 2014, young were successfully fledged. Based on multiple observations of the 21 active nests, all were productive and fledged young. Of special note, one nest (#9) slowly disintegrated during the season, and of 4 young only 1 appeared to have died, while the others clung to the remains of the nest or limbs nearby, and all were thought to have fledged. Usually adult herons are very fastidious about their nest structure and contents, continually adding to it during the first month or two of nesting season. This is the first time we have observed and recorded a nest that literally fell apart during the nesting season, with young in it.

Following an examination of 21 nests throughout the season, a total of 52-56 young were recorded. This results in 2.5 young per nest. The discrepancy in number of young was due to higher numbers at 4 nests observed only once and not repeated. In 2013, 40 young were counted in 16 nests, averaging 2.5 young per nest, and in 2012 the average was 2.4 young per nest. In both 2010 and 2011 an average of 3 young per nest was documented. Although the 2012 - 2014 the number of young is lower, these results are within the regional norm and reflect good health and success on the part of the herons and locally viable food sources.

## FORAGING OBSERVATIONS

Basic foraging surveys are conducted near the colony by the monitoring biologist during each nesting season. Documentation of heron numbers at foraging grounds and feeding habits are recorded. Prey species, if identified, are also documented. Foraging area preferences vary and are likely based on tides, currents and favorable habitat access, seasonal prey availability, 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 2). This shoreline is used frequently, even daily for foraging. Shoreline observations made at each site visit during the 2014 season were recorded. Of a 47 total site visits during the 2014 season, 36 were during favorable foraging periods, based on tidal stage for Post Point. Of these favorable foraging visits, 21 resulted in herons observed foraging along the marine shoreline or the lagoon. The total number of heron observed during any single visit ranged from 1 to 11. The table below provides foraging results by month.

**Table 1: 2014 Foraging Survey Summary by month**

Month 2014	# 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	5	2	0	1,2
March	3	1	2	0
April	9	5	2,1,1,6	1
May	8	6	1,5,1,8,11	1
June	8	5	5,5,6	2,1
July	3	2	2	1

Note: early July (peak fledging) surveys were not completed.

The heron's use of the Post Point shoreline is limited by tidal stage (exposed intertidal area), prey availability, wave conditions and human activity. Eelgrass, which grows in the intertidal area, 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 or 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 in June and July, 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 2014 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 peak rearing period (June/July) heron concentrations at Post Point increase during favorable tides. This year, heron numbers increased significantly in May. In addition to adults, young heron utilize the Post Point/Marine Park shoreline for feeding and the Post Point Lagoon for both foraging and loafing. Unfortunately, during peak fledging in early July shoreline surveys were not conducted.

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 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, 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.



Mike Hamilton photo

## **DISTURBANCE**

Disturbances to Salish Sea heron colonies may range from predators, human activities and/or intrusion, to low-flying air craft and bad weather. Any natural or unnatural cause of stress, changes in normal behavior or flushing from nests, roosts or feeding grounds is considered a disturbance. Repeated disturbances may result in, reduced food intake, reduced productivity or reproductive failure. Disturbances over time may result in 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. 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.

### **PPWTP Construction and Associated Disturbance**

The Post Point Wastewater Treatment Plant Expansion project, as described earlier in this report. The project was started following the 2012 heron nesting season and continued through June of 2014. This expansion project, is by far the greatest source of human disturbance the heron colony has ever been subjected to both spatially and temporally. The project was situated adjacent to the heron colony, about 100 feet at the nearest point, and continued for a duration of 2 years, including 2 nesting season.

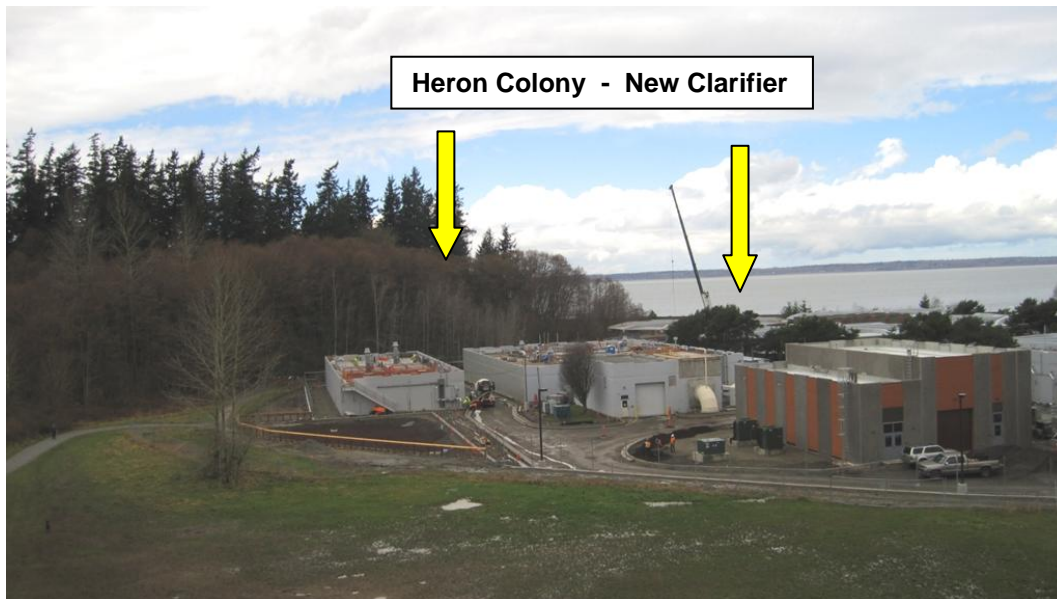
The construction and related disturbance peaked in 2013 with equipment, aerial cranes, incessant noise and activity, running daily and some weekends for the entire nesting season. Although the construction was greatly reduced in 2014, construction continued during this nesting season, with both noise and work near the colony. Finishing work dominated the construction activities at Post Point for 2014. Work included, the completion of infrastructure, pipe connections and testing, as well as detail for all structures including rails, paint, etc, and ground work including roads, trails, fencing and landscaping.

The most potentially disturbing aspect of the expansion project for the herons, was the construction of a secondary clarifier, located about 150 feet from the colony at the nearest point.



Most of the clarifier's structural work was completed in 2012 and 2013, with the heavy excavation and pouring of most of the structure and completion of the superstructure occurring outside the herons nesting season. Overall, the placement of the clarifier structure does not appear to have impeded the herons nesting activity and no direct disturbance was observed.

Post Point Wastewater Treatment Plant – new trail and new clarifier on right, heron in air flying to colony on left. AE 3/7/14



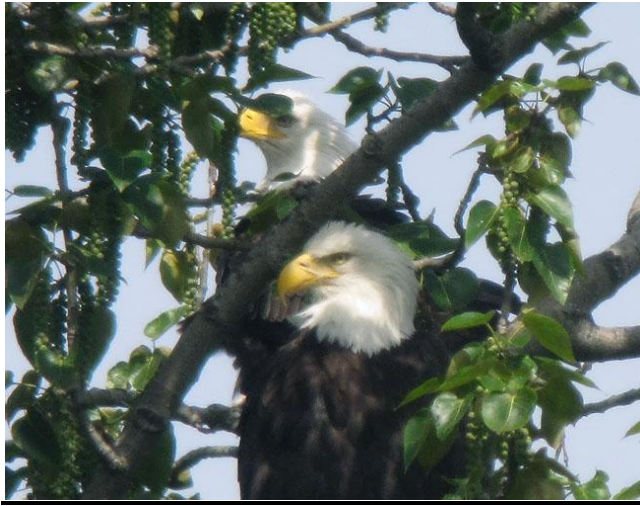
Post Point Wastewater Treatment Plant – 3/19/14 TD

As part of the new clarifier placement, the old public trail was displaced and a new trail, fencing and landscaping was constructed around the southwest side of the new clarifier, moving the trail closer to the heron colony. That work was underway in February and continued through March 2014. No disturbance to the herons or colony was observed, and the trail remained closed to the public during construction. Due to the close proximity of the trail to the colony (less than 100 feet) it was requested by the Biologist to keep the trail closed until the end of the 2014 nesting season in order to allow the herons to acclimate to the changes, allow the vegetative screening to fill in, and avoid any disturbance from trail users this season.

Another source of disturbance was the overall construction activity, with heavy equipment, cranes and excessive noise levels. Noise levels related to construction have been considered a potential disturbance to the herons and at times have been extreme. In an attempt to gauge noise levels, the Biologist in the field records sound levels at a fixed location per site visit using a cell phone App. Noise levels are recorded at the base of the colony's northeast edge at ground level. These levels are measured in decibels (dB) and range from a low ambient level of 57 dB, to a high level of 97 dB. Generally on-site sound levels range from the mid-60 dB to low-90 dB. The greatest noise levels occurred during combined construction activities using heavy equipment, drilling and dumping of materials. High noise levels were also recorded for trains passing and low flying aircraft. The Biologist also records the overall sound level during each site visit using a simple scale of High, Medium, and, Low, to indicate intensity.

During the course of 26 weeks of monitoring and 47 site visits total, the observable indicators of construction related disturbance was the lack of staging early in the season, the lack of normal roosting and loafing aggregations of heron within the colony, and the heron's flight avoidance of cranes. The lack of regular Bald Eagle activity may also have been influenced by the construction and related disturbance.

One notable difference between 2013 and 2014, was the more relaxed nesting season this year, opposed to the notable change in behavior and abbreviated nesting season in 2013. Normally, herons at this site are in the colony nesting over a period of 21 to 25 weeks. In 2013, the heron were in the colony only 19 weeks total.



Mike Hamilton photo

### **Bald Eagles and Other Predators**

Bald Eagles 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. 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, however this year the nest stand had at least one friendly Crow nest on the perimeter of the colony and all coexisted effectively, with resident Crows mobbing any potential predator that came close including Bald Eagles.

A mature pair of Bald Eagles, particularly the male, is commonly observed in the vicinity of the heron colony every nesting season and regularly perches in a dominate Douglas Fir directly above the colony. In 2013 eagles were scarce and when present individual mature eagles were noticeably disturbed by the construction. In 2014, Bald Eagles were observed during 18 of the total 46 site visits, unlike nearly daily sightings prior to 2013. Either a single or the pair of adult eagles would perch above the heron colony in a large Douglas Fir tree and were observed more regularly in May of this year. Mobbing by crows was also observed, resulting in the eagles moving to a perch further west, away from crows and the heron colony.

No Bald Eagle disturbance or incursions in the heron colony were observed this season. An eagle was observed in the colony once, but the herons were not alarmed and the eagle was chased off by crows. One possible eagle incursion in the heron colony was reported by a neighbor, but was not confirmed.

In the past, Bald Eagle incursions in the heron colony, particularly during hatching and soon after, were predictable. In 2008 and 2009 the herons experienced severe depredation by Bald Eagles, to the point of abandoning the colony at mid-season. A pair of Bald Eagles nesting near the colony may have contributed to the depredation of the herons in order to feed their young, however immature eagles were observed at the same time. Remarkably, the colony rebounded in 2010 and experienced no eagle incursions, but the colony size had been greatly reduced. In 2011, Bald Eagle depredation of the Post Point heron colony recurred, repeatedly over a few days with the loss eggs and young, however the heron remained in the colony and re-laid eggs.

In 2012 and 2013, the colony was spared serious eagle depredation, with only two minor incidents reported. In 2014, the lack of incursions and predator pressure on the heron colony by eagles, was likely due to resident eagle pair's failed nesting and lack of young to feed this season.



**Resident Bald Eagle pair near heron colony.**

Photo by Jack and Sandi Starr 2/10/14

The issue with eagles raiding heron nests is not isolated to Post Point. It is known to occur throughout the Salish Sea. As Bald Eagle populations have recovered since their low numbers in the 1960's and 70's, their primary prey species have declined, including coastal salmon, herring and seabird/seaduck populations. As a result, eagles have resorted to preying on heron and other large bird colonies. This season, many colony monitors around Puget Sound were reporting eagle depredation, in one case, so severe it caused the colony to abandon the site for the year.

Due to the success of the Bald Eagle population, 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 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.

In 2006, a Bald Eagle nest was identified near the Post Point heron colony and recorded by the Washington Department of Fish and Wildlife's Region 6 Bald Eagle Specialist Julie Stofel. This nest has not been active in recent years, however eagles continue to frequent Post Point. In late 2013 an active Bald Eagle nest was reported in Edgemoor, located approximately ½ mile south east of the heron colony. This nest was reported to be active for the past 5 years and would explain the persistence of adult eagles in the area of Post Point, but no active nesting in the immediate vicinity of the colony. Based on information from the monitoring Biologist, this eagle pair did not successfully nest in 2014. The new nest location relative to Post Point is illustrated in Figure 3.

Figure 3: Bald Eagle Nest Location and Heron Colony

## POST POINT HERON COLONY 2014



## **Other Disturbance**

For the 2014 nesting season no serious disturbance in the colony or at the foraging areas was observed or reported. There is always some human/heron interaction along the shoreline at Marine Park. 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. As a result, the Post Point, Marine Park area is inundated with people, temporary structures and equipment on race day. During previous four years, a biologist has made site visits during the weekend to document the heron's response to race activities. The results of these observations were negative for disturbance to the nesting colony due to distance from the event and screening. Also access near the colony was prohibited in 2013-2014 due to trail closures during construction.

Disturbances to herons foraging along the shoreline at Marine Park during Ski to Sea is likely due to hundreds of race-day fans watching from the beach. However, direct disturbance to herons is dependent on tidal stage. For 2014, the tide was very high at mid afternoon when racers would begin the finish, followed by a 4 ft low in the evening. As a result no observations were made since no conflicts were expected.



Bellingham Herald photo 2014

## **NEST SURVEY & MAPPING UPDATE**

The annual nest count is the standard method for determining the number of nests within a heron colony. Autumn allows maximum viewing of the whole heronry, following leaf drop, and provides the most accurate nest count. In colonies that were not fully utilized, a simple count of nests at the end of a breeding season can misrepresent actual numbers of active or successful nests, so colony monitoring during the nesting season is an essential complement.

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 4).

For this year, the autumn nest count was conducted November 13, 2014. Results from this count are a total of 14 nest trees (same as 2013), with one new nest tree this season. There were a total of 21 nests present (4 more than 2013), although one nest platform had deteriorated. All of these nests were active.

During the annual nest count, each nest tree is tagged or existing tags are read, and tree condition is noted. New nest trees were recorded and tagged. The number and size of nests are recorded as well as the presence of egg shell, remains or blown down nests. A database of nests and nest trees is maintained and updated annually. All of the active nest trees were alder.

In review of previous years (Table 2), 19 nests were active in 2004, two of which may not have supported young. In October 2005, a total of 31 nests counted in 10 nest trees, of which 13 nests were new for that year. In 2006 a new high of 37 nests were recorded. The 2007 nest total of 27 nests represented the first decline in breeding numbers since the colony established in 2000. In 2008 and 2009 all active nests failed, with 17 in 2008 and 11 in 2009. In 2010, the colony rebounded with 13 active nests, all of which fledged young. In 2011, a total of 16 nests were active. In 2012 and 2013, 17 were active.



A colony map update was completed in November 2014, by Chris Behee, GIS Specialist for the City of Bellingham. The colony maps (Figures 2-3) illustrate the colony, its location on the landscape, the core area, nest tree location and number of nests per tree. The base used for these maps are 2013 aeriels that show construction still underway at the Post Point Wastewater Treatment Plant.

The colony core area, as indicated on the maps, constitutes the actual nesting area and is calculated 50 feet laterally from the base of the outermost nest trees. This allows for variance in tree canopy and varied nest locations. GPS readings of each tree are taken at its base. The core area is about 1 acre in size. A 100 foot buffer 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 also represents an area in which the colony could move over time. However, due to new construction at the PPWTP and the placement of a new clarifier and associated trail inside the buffer, this is little room to expand north.

The colony has changed little in density since 2012. However, several nest trees shifted in use between 2013 and 2014. Of the 14 trees used for nesting in 2013, only 8 nest trees, or about half, were reused in 2014. The 2014 map (figure 4) illustrate the all nest trees in the colony and those active in 2014. Little change to the configuration or perimeter occurred between 2012 and 2014.

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

**Table 2: Post Point Heron Colony Annual Nest Count**

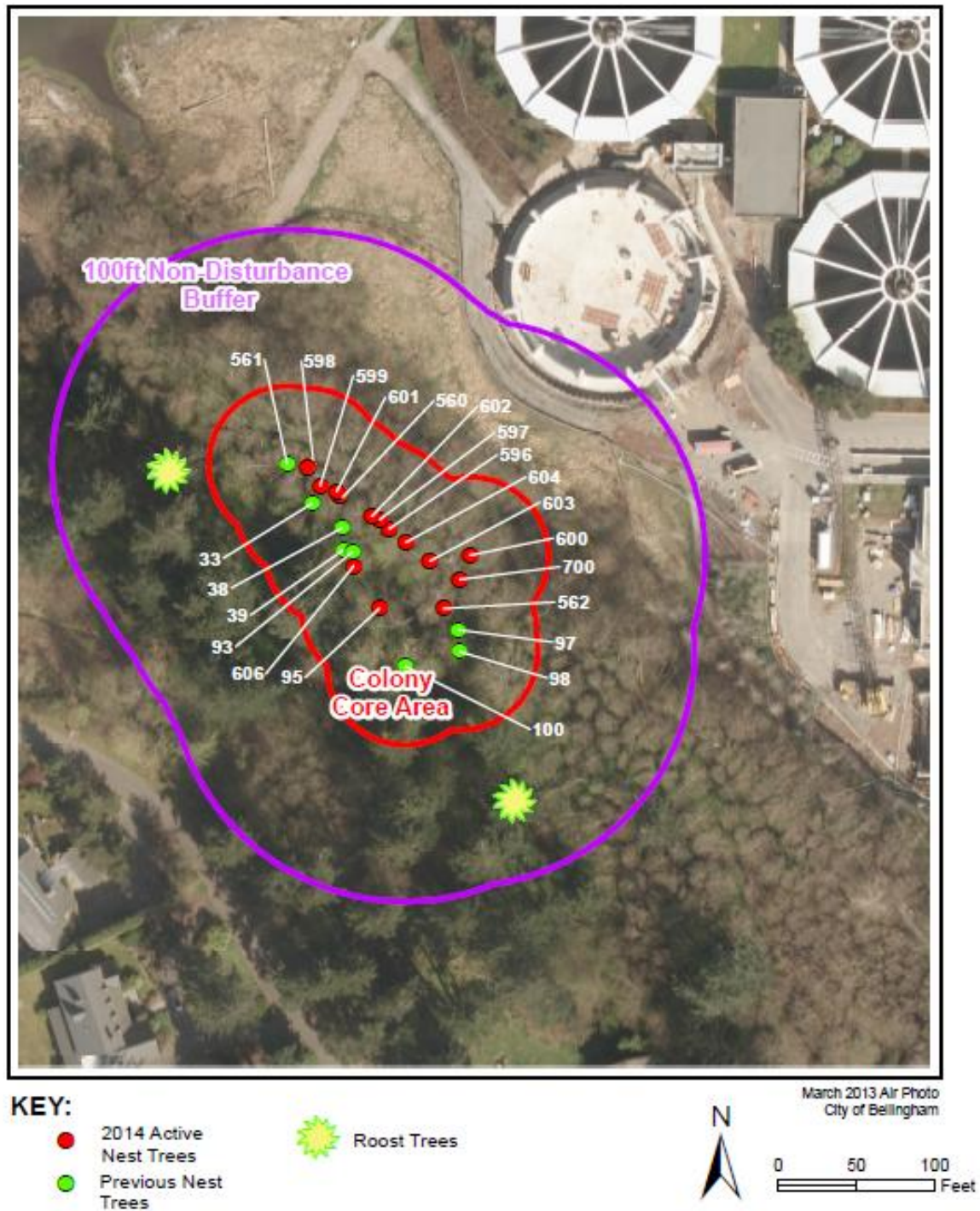
Year	Total number of nests	Total number of nest trees	Percentage change (# of nests)
2000	6	5	----
2001	8 estimated	6 estimated	+33%
2002	10	6	+25%
2003	14	8	+40%
2004	19	10	+36%
2005	31	10	+63%
2006	37	15	+19%
2007	27	12	-27%
2008	17 active	9	-37%
2009	11 active at onset 9 active nesting	8	-35%
2010	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	+24%



Biologist Tami DuBow counting young in nests 2014

Figure 4: Colony Map 2013 Update (new PPWTP structures visible)

## POST POINT HERON COLONY 2014



Note: All tagged tree locations were re-surveyed In January 2013 by PW Survey Staff.

## COLONY DYNAMICS

The Post Point 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 in 2013 no change occurred. Finally, after 7 years of decline, instability and stagnation, the colony is growing again. In 2014, 21 nests were occupied and fledged young.

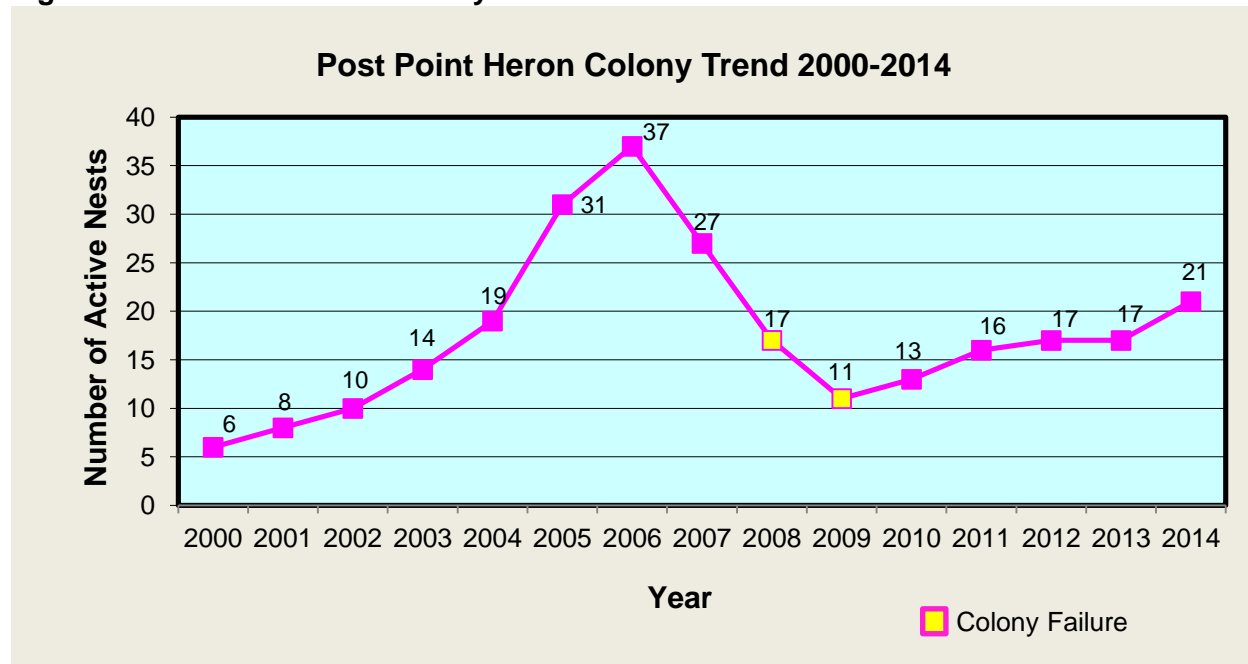
The early growth of the colony indicated the annual influx of new breeding adults and likely return of previous fledglings to breed once reaching maturity (2-3 years of age). Based on 2005 fledging numbers, the predicted return of 30 young breeders did not occur, instead approximately 20 heron failed 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. 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 2013 marked a positive rebound 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, with the nearby construction, increased noise and large scale landscape changes, a decline was expected. Instead, the colony appeared maintain status quo for the season and fledged young in a fairly condensed nesting season.

Finally, 2014 proved to be a successful year on all fronts. Despite disturbances, increased human activity and noise over an extended period, the colony grew by nearly 20%. The explanation for this growth and successful fledging of young is not clear. The mild winters over the past 2-3 years support survival, particularly for younger heron and breeding recruits. The lack of Bald Eagle pressure and depredation is certainly a positive factor. And the heron's high site fidelity is an indication of long term devotion to this nesting site. Abundant food and stable food supplies are likely a contributing factor, however no data is available to support this possibility.

**Figure 5: Post Point Heron Colony Trend**



## MANAGEMENT AND STEWARDSHIP

The Post Point Heron Colony was established in 2000. Herons have occupied and nested at this site for 15 seasons. During this time, the heron colony has grown, declined, abandoned and rebounded and has produced young for 13 out of the 15 years. The continued management and stewardship is vital to maintaining this important wildlife area in the City of Bellingham.

With the Post Point Wastewater Treatment Plant Expansion completing its construction this year, with a new built landscape, changed habitats in the immediate vicinity of the colony, and new public trail within approximately 80 feet from the nearest nest, close monitoring of the heron colony is vital. In addition, public education, signage and outreach will be important tools to inform the public and user groups about herons feeding along the shoreline and keep interactions between herons people and dogs to a minimum.



New clarifier and trail under construction – heron colony to right in forest stand.  
AE 2014



New interpretive and viewing platform located between lagoon and heron colony (in background)  
TD 2014

Recommendations for 2015 management and stewardship of the Post Point Great Blue Heron Colony are as follows:

1. Continue routine annual monitoring of the Post Point Heron Colony.
2. Record and report any disturbance to herons in the colony or foraging areas.
3. Limit disturbance of as much associated upland habitat around the colony as possible.
4. 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.
5. Repeat a comprehensive foraging survey around Bellingham Bay and Chuckanut Bay to document current heron foraging areas.
6. Monitor Bald Eagle activity near the colony.
7. Request that the City of Bellingham install and maintain a webcam in the colony for on-going education and monitoring.
8. 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. This plan is now outdated. Given the 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 can be better understood and tracked over time.

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

## CONCLUSION

In 2014 the Post Point Great Blue Heron Colony has succeeded in producing young and contributing to the perpetuation of this species in the Salish Sea. New nests and growth in the colony this year, is testament to the herons tenacity and high site fidelity, considering their nesting took place during the completion of a major two year industrial construction project adjacent to the heronry.

Due to the Post Point Wastewater Treatment Plant expansion project, continuing for its second season, monitoring of the heron colony also continued in an intensified mode. Monitoring started in February and ended in late July, during which time Nahkeeta Northwest monitored the colony and foraging area, recorded all observations, and reported weekly to the City of Bellingham. In order to gauge disturbance, the heron's behavior was watched closely, productivity was measured and sound levels were recorded. A total of 47 monitoring visits were made in 2014, 17 detailed weekly reports issued and 2 progress reports were submitted. This Annual Report provides the final summary of the 2014 heron nesting season and results of all monitoring activities.

The Post Point herons returned to the colony in mid-February, but didn't start nesting until March due to a late winter storm. The herons nested through June and early July, with final fledging in late July. The herons appeared to nest normally, except for the early season delay. The heron, in 2014, occupied 14 nest trees and a total of 21 active nests. Active nests supported an average of 2.5 young per nest, within the normal range for this region. Heron young and adults dispersed from the colony following nesting/fledging by August 1.

The Post Point Great Blue Heron Colony has proved resilient over the past two seasons, during which time the Post Point Wastewater Treatment Plant expansion was underway in close proximity to the heron nesting area. Every effort was made to carefully monitor the herons, using data collected to inform the construction process, reduce impacts where possible, and communicate with both project managers and the public. Despite noise, construction activity, overhead cranes and a changing landscape, the colony persisted and successfully fledged over 50 young.

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 including: Larry Bateman and the staff of the Post Point Waste Water Treatment Facility, and Freeman Anthony, P.E. PPWTP Project Engineer.

We would also like to express a special thank you to Chris Behee, GIS Specialist with the City of Bellingham, for providing nest locations, mapping and excellent updated maps for this report. We greatly appreciate photographs of the Post Point herons provided by Alan Fritzberg and others by Mike Hamilton, and the eagle photo from the Starr Family. Finally, we acknowledge the support of neighbors 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 (2014 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 5<sup>th</sup> 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 6<sup>th</sup> 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 7<sup>th</sup> 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 8<sup>th</sup> 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 9<sup>th</sup> 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 10<sup>th</sup> 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 11<sup>th</sup> 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 nest productivity!
-

## 2011

- Herons return to nest at Post Point for 12<sup>th</sup> 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 13<sup>th</sup> 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 14<sup>th</sup> 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
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## 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 15<sup>th</sup> 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



**Heron Flyover**

Photo by Mike Hamilton

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