



## Heron and Eagle Foraging Monitoring in the K'omoks Estuary

YER Phase II Project June 5-9, 2023



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## **Acknowledgements**

This report describes the enthusiastic efforts of Cy Fitzgerald and Hope Kopeck and their mentors. Youth and Ecological Restoration (YER) was created by Wendy Kotilla in 2004. The heron and eagle study was a YER Phase II project, organized and overseen by her and Registered Professional Biologist, Tanis Gower. YER is mainly funded by the BC Ministry of Children and Family Development and Comox Valley School District #71. This YER Phase II project is funded by a Community Grant from the Comox Valley Regional District.

# 1. Introduction

The purpose of the study was to

1. To count the number of Great Blue Herons and Bald Eagles foraging in the intertidal areas of the K'omoks Estuary at low tides during nesting season;
2. To observe any disturbance to the foraging birds and observe flight directions as possible;
3. To collate citizen science data collected since 2013 to ascertain any trends in the numbers of foraging birds;
4. To standardize the data collection method for future citizen science efforts;
5. To provide a meaningful opportunity for vulnerable youth within the Comox Valley by providing them with hands-on opportunities to engage with nature and adult mentors.

## 1.1. YER Program

Youth and Ecological Restoration (YER) provides youth aged twelve to eighteen with one-on-one work experience through ecological restoration methods, ecotherapy practices and mentoring support. Youth learn social, practical and communication skills to motivate them in becoming confident, respectful, and productive members of society.<sup>1</sup>

All youth involved in the program begin with Phase I, where they work with a YER staff person and with environmental organizations and volunteers focused on restoring local watersheds and ecosystems. On program completion, youth give an oral presentation for a community group.

Some graduates of Phase I are accepted into Phase II. In Phase II, two youth, a YER staff person, and an environmental professional work on a project together. The focus is on a specific environmental project for advanced learning about ecological information, research techniques, and collaboration and communication.<sup>1</sup> The project is completed to a professional standard to provide useful information and assistance to land managers. YER II is five days, which consists of three days of field work, and two days of tour preparation and delivery. On the final day, the youth co-facilitate a public tour to complete the project.

## 1.2. Study Location

The K'omoks Estuary lies southeast of the City of Courtenay. It receives fresh water from the Courtenay River, Trent River and smaller waterways feeding into the estuary, such as Millard and Glen Urquhart Creeks. The study area covered most of the foreshore of the estuary. See Figure 1.

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<sup>1</sup> <https://youthecology.ca>

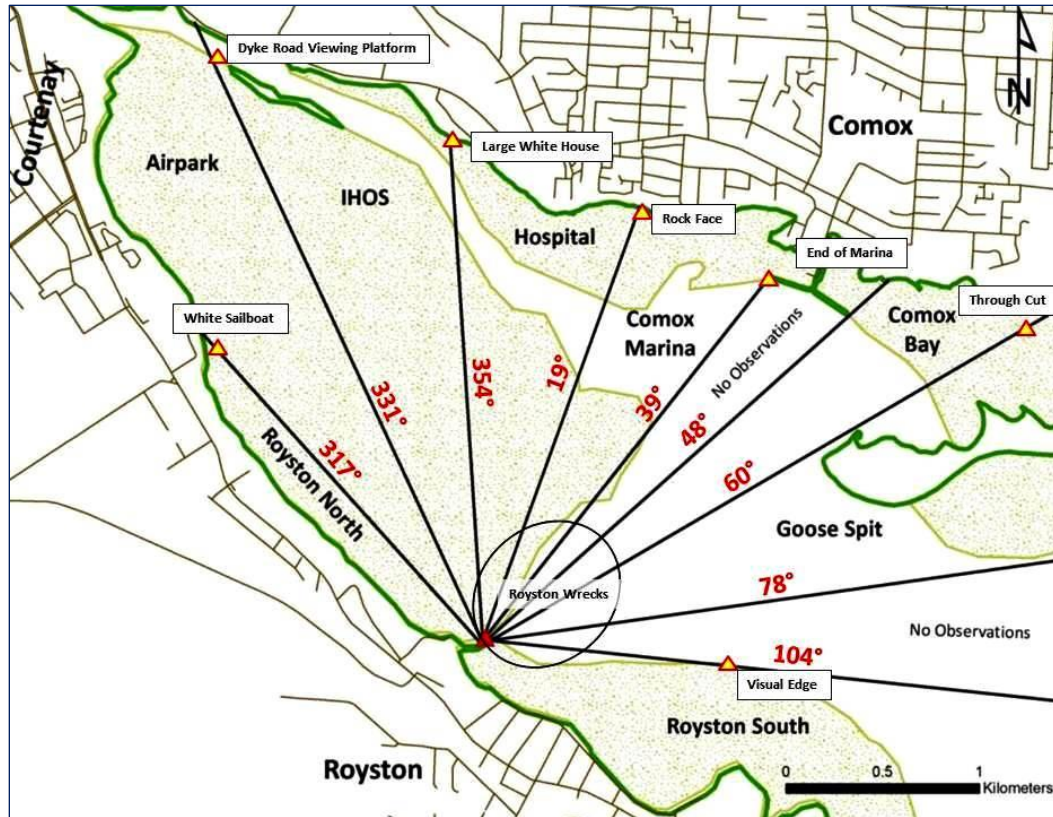


Figure 1: Map of the study location and viewing location in the K'omoks Estuary. Image from Warttig and Kotilla 2017.

### 1.3. Study Background

A citizen science census of heron foraging in the Comox Valley region was first done in 2013 as an initiative of the Mountaineer Avian Rescue Society (Moul and Birch 2013). Monitoring was conducted during the nesting season (February to July) with varying levels of effort in eight locations across the Comox Valley. The impetus for the project was the lack of local information regarding where herons were foraging and in what numbers. Additional goals were to determine if there were optimal tide levels for heron foraging, and to identify nesting and roosting habitat close to the prime foraging areas. YER was involved in the initial heron foraging project at the Royston Wrecks site. One result was the finding that the highest numbers of foraging herons were seen in the estuary (Moul and Birch 2013).

In June 2014, a census of heron foraging for the entire the K'omoks Estuary was conducted as a YER Phase II project, using a similar methodology and the same estuary location as the 2013 study. In addition, the study looked at heron flight directions in relation to the Point Holmes nesting colony (Moul and Kotilla 2014).

Data collected in 2016 and 2017 through YER Phase I and in 2017 by a YER Phase II project were incorporated into a 2017 report by Warttig and Kotilla (2017). Beginning in 2016, the number of foraging Bald Eagles were collected using the same methodology. This was done due to the high numbers of Bald Eagles consistently observed foraging in the estuary during the same time periods as Great Blue Herons. The observations in 2016 and 2017 were mostly conducted in May and June.

YER Phase I participants collected heron and eagle foraging data with Wendy Kotilla in the months of May, June and/or July in 2018 to 2021 using the same methodology as described in Warttig and Kotilla (2017). Graham Hilliar and YER I youth participants collected data in 2022. All these data are incorporated into this report.

Earlier observations (Ian Moul, pers. comm.) suggested that herons forage most frequently along the marine shore in intertidal areas at low outgoing tides that concentrate prey species. These observations directed the timing of data collection in 2014. This observation was reinforced by the results of Warttig and Kotilla (2017), which observed the highest numbers of foraging herons during low outgoing tides.

#### 1.4. Great Blue Heron and Bald Eagle biology and conservation status

##### 1.4.1. Great Blue Herons

Great Blue Herons require treed sites for nesting colonies, foraging areas in proximity to the nests; and roosting sites for use outside of the breeding season. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) affirmed in 2008 that the coastal subspecies of Great Blue Heron (*Ardea herodias fannini*) is of “Special Concern” status. The rationale for the status was “*evidence of declines in productivity and it is unclear whether the population is stable or declining. Threats from eagle predation, habitat loss and human disturbance are ongoing, particularly in the southern part of the range where concentrations of birds are highest.*” Both subspecies (interior and coastal) of Great Blue Heron have been designated as ‘Blue list’ species by the British Columbia Ministry of Environment. “Blue-listed” species are considered to be vulnerable and “at risk”, but not yet endangered or threatened (COSEWIC 2008).

Section 34 of the British Columbia *Wildlife Act* protects raptor (eagle) and heron nests. Potential nesting habitats are not protected, though most heron colonies relocate every few years (Gebauer and Moul 2001). As lands are developed and forests removed, the amount of potential nesting and roosting habitat decreases.

During the nesting season it is reasonable to assume that most herons will forage in close proximity to their nesting colonies, and that nesting colonies are located based on a nearby food source (Butler 1997; Ian Moul pers. comm.)

General information about the timing of heron nesting in British Columbia (Campbell *et al.* 1990 and Cannings 1998 in Gebauer and Moul 2001) suggests that herons return to nesting colonies on the coast in mid-January. Nest building is usually initiated in March on the coast (Campbell *et al.* 1990 in Gebauer and Moul 2001). First eggs are usually laid in early April (Butler 1992 in Gebauer and Moul 2001). Young are reared on the nest for about 60 days, fed mostly fish caught near the colony site (Krebs 1974 and Simpson 1984 in Province of BC 2004).

More specific information about the timing of Great Blue Heron breeding in the Comox Valley was provided by Ian Moul, R.P.Bio. (retired) (pers. comm. 2023), based on his extensive prior work observing nesting colonies:

Nesting begins around March 1 when herons start to congregate in the vicinity of their nesting colonies. By the third week of March the herons are in the colonies courting, building, and rebuilding their nests. Egg laying and incubation begins in approximately mid-April. The incubation period is approximately 28 days. Heron chicks begin to hatch by the second week of

May. For the first two and a half weeks after hatching there is always at least one adult heron at the nest. As the chicks grow, less time is spent at the nest and more time is spent flying back and forth to the feeding areas. The juvenile herons begin to leave the nest eight to ten weeks after hatching, towards the end of June. If the nesting proceeds normally, all chicks and adults will have left the colony by the end of July. If the herons are disturbed early in the nesting season, they will make a second attempt and can be rearing chicks until as late as September.

It has been suggested that the numbers of herons foraging in high value estuary habitats in proximity to nesting colonies can be used to approximate the number of nearby nesting heron pairs (Ian Moul, pers. comm 2023). Generally, while eggs are incubating and while chicks are in their first weeks – typically during the months of April and May – one adult will stay at the nest while the other forages during the hours leading up to low tide, when prey animals are more concentrated at the water’s edge. Beginning sometime in June, both adults will leave the nest to forage during peak foraging times (Ian Moul, pers. comm. 2023).

#### 1.4.2. Eagles

Populations of Bald Eagles (*Haliaeetus leucocephalus*) in British Columbia are considered “secure” and “not at risk” and are on British Columbia’s “yellow list” (BC Conservation Data Centre 2023). This means that the species is generally widespread with healthy populations.

Populations have rebounded from the historic impacts of DDT and other contaminants, as well from historic hunting and bounty collection (Elliot *et al* 1996 *in* Warttig and Kotilla 2017). Yet they are still potentially at risk from human disturbance including habitat loss, human disturbance and pesticides (BC Conservation Data Centre 2023).

Breeding habitat most commonly includes areas within four kilometres of water that provides food sources (BC Conservation Data Centre 2023).

## 2. Methods

The field program was carried out from June 5 to 9, 2023. The four YER team members were YER youth participants Cy Fitzgerald and Hope Kopeck, YER Coordinator Wendy Kotilla, and Registered Professional Biologist Tanis Gower.

Over the first three days the team observed foraging herons and eagles. On days four and five the focus was on the preparation and presentation of a public tour by the youth.

Counts of foraging herons and eagles were made from a vantage point near the public Royston Seaside Trail and close to the Royston Wrecks (Figure 1). This is the same location used for all data collection beginning in 2013.

On June 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup>, the two youth scanned the study area with two telescopes every 20 minutes over an approximately three-hour period and recorded the numbers and locations of foraging herons and eagles. The observation sessions were conducted during a descending tide to the point of low tide on June 5 and 6. On June 7, the three-hour observation period extended one hour past low tide. This adjustment to the methodology was made to ensure that peak bird numbers were documented, based on opportunistic observations of peak eagle numbers after low tide on June 5 and 6.

Notable heron arrivals and departures were recorded as they occurred. Any human presence near the foraging areas was noted, and it was also noted if there was a noticeable reaction by the herons or eagles. These observations were not restricted to the 20-minute sampling regime. Incidences of BAEA and GBHE interaction and their forage species were also noted where possible.

Observations within the study area was divided into eight sections (Moul and Kotilla 2014 and Warttig and Kotilla 2017) as follows, and as shown in Figure 1:

- Royston North: The foreshore from the wrecks along the shore to a prominent pink house.
- Airpark: From a prominent pink house to the public viewing stand along Dyke Road.
- IHOS: From the public viewing stand to a prominent white house near the base of Comox hill.
- Hospital: From a prominent white house to below (the former) St. Joseph's Hospital.
- Comox Marina: The foreshore to the west of the Comox Marina.
- Comox Bay: The visible portion of Comox Bay east of the Comox Marina and north of Goose Spit.
- Goose Spit: The foreshore along the west and south sides of the spit.
- Royston South: The visible portion of the Royston foreshore from the wrecks to the mouth of the Trent River.
- Royston Wrecks: the area in proximity to the viewing station.

The total viewable area was approximately 795 ha (Warttig and Kotilla 2017). Of this, areas with no visible foreshore were excluded (i.e. east of the Comox Marina and the open sea south of Goose Spit, see Figure 1). The area of Royston (47 ha) that is south of the Trent River was excluded as it was not visible from the vantage point. Thus, the area in view was the majority of the estuary as defined by the zone stretching from approximately the Trent River to the outlet of the Courtenay River at the airpark, and across the bay to the corresponding shoreline in Comox, extending south to the tip of Goose Spit.

## 2. Results

### 2.1. Summary of historic results

Data on heron numbers have been collected since 2013, and on eagle numbers since 2016. No heron data were collected in 2015. Data collection happened between one and 14 times per year, with most years having two or more observation dates, often sequential. The most observations occurred in 2013, in the months of February, April, May, June and July. In subsequent years observations occurred only in the months of May through July.

Heron numbers were low in February and April 2013, and were also low in May 2013, possibly because the May observations were undertaken during high or incoming tides. In subsequent years, when observations were undertaken in May and June of the same year, the highest heron numbers were seen in June. This finding does not appear to correlate with tide level so likely relates to other factors like seasonal prey availability and/or the heron lifecycle.

Eagle data was collected only in the months of May and June. The highest annual observations occurred in both months, though two highest counts for the entire period occurred in June.

Figure 2 shows the annual counts of both herons and eagles. Due to variability in the date and conditions of the data collection, trends cannot be confirmed. For instance, eagle numbers were lower



in 2020 through 2023, but only one of the observations from these years was conducted in June, and while the June observations were done on an outgoing tide, they did not coincide with low tide.

The graph shows what may be declining numbers of herons over time, though consistent future observations would be required to determine if this is true.

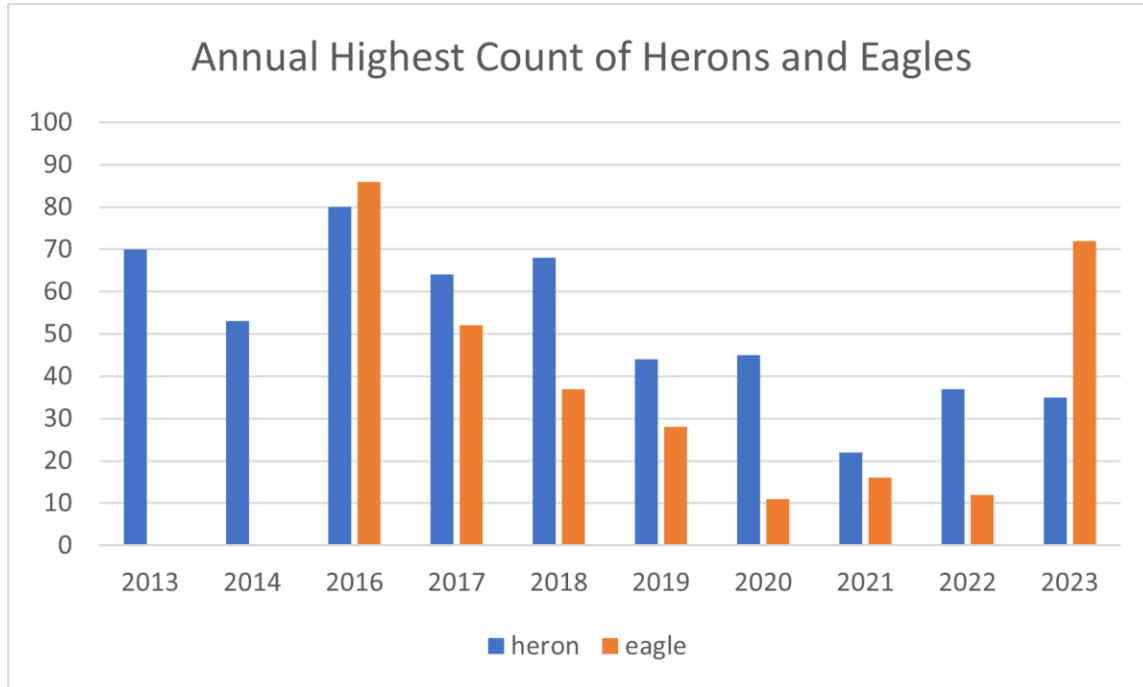


Figure 2: The highest individual bird count per year, beginning in 2013. These data are the highest observed on a single date of any of the dates sampled. All highest counts were from the months of May or June, except in 2020 when sampling occurred in July.

## 2.2. 2023 results

As shown in Figure 2, 2023 eagle numbers were the second highest recorded, while heron numbers were similar to recent years, but lower than counts in 2018 and earlier. Figure 3 shows the observation period relative to the tide and shows the time during the tidal cycle when the highest number of eagles were spotted.

During the three days of observation, the highest number of herons were seen at the following tide levels: 20 herons at a tide level of 0.47 (both falling and rising tides on June 5), 25 herons at a tide level of 0.22 on June 6, and 35 herons at a tide level of 0.46 on June 7, 2023. On June 7, observations were made until one hour past low tide and noted herons leaving the estuary (by tide level 0.56 only one heron was spotted, and observers noted that the isolated pool nearest the observation station was flooding).

The highest number of eagles were seen after low tide. On June 5 and 6, these numbers were recorded opportunistically by the team – see Figure 3. On June 7, these numbers were recorded during the main observation period which included the hour after low tide. On June 5, 72 eagles were observed 65 minutes after low tide at a tidal level of approximately 0.5 m. On June 6, 51 eagles were observed at 57

minutes after low tide at a tidal level of 0.46 m. On June 7, 48 eagles were observed at 20 minutes after low tide at a tidal level of 0.34 m.

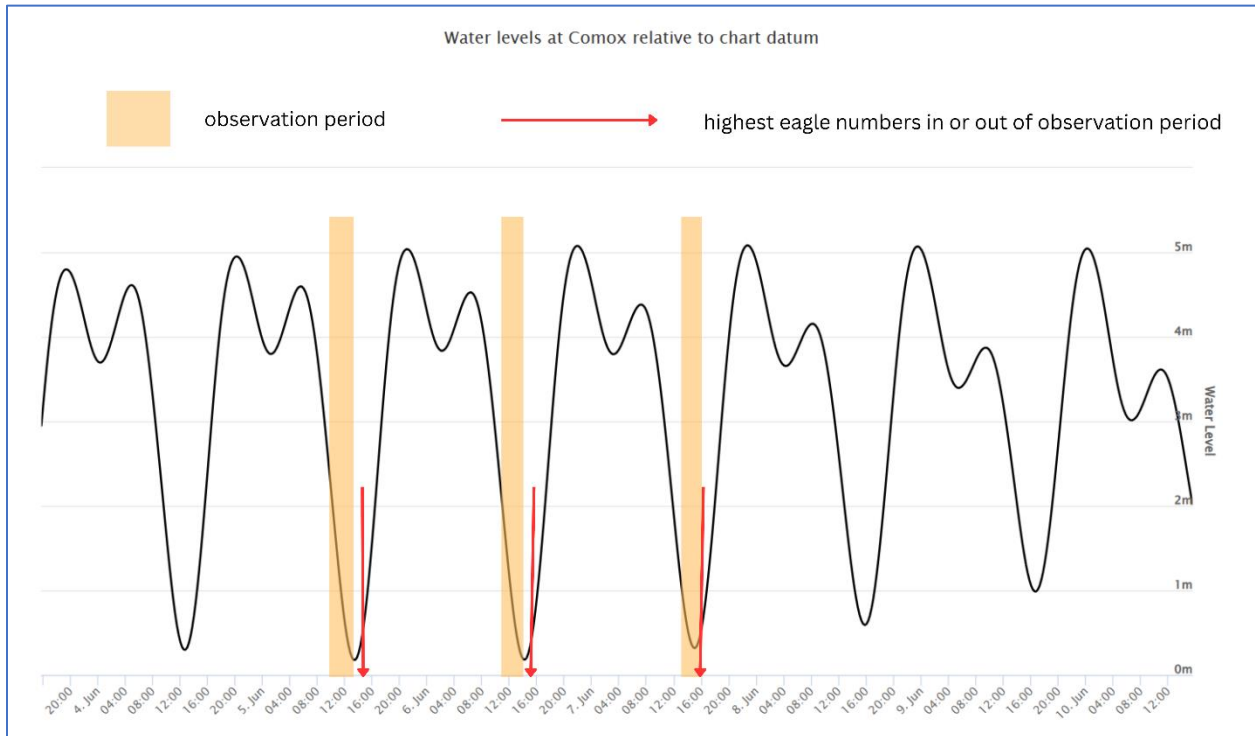


Figure 3: This overlay onto a tidal chart (Comox -07965 at [www.tides.gc.ca](http://www.tides.gc.ca)) for June 4 -9 shows the low tides that occurred this week. The observation periods were on the dropping tide on June 5, 6 and 7. Additional opportunistic observations (red arrows on June 5 and 6) showed the largest gatherings of eagles seen during the project. Eagles appear to be taking advantage of feeding opportunities in a specific part of the estuary at this specific time during the tidal cycle.

Each day of the project, the herons arrived in the estuary and moved to various locations, then would at some point concentrate their feeding in an isolated tidal pool near the observation station (Figure 4), and at apparently similar locations further to the east. The pool near the observation station contained eelgrass and the team could see small fish being consumed.



*Figure 4: Herons feeding in a pool shortly before low tide near the observation station on June 7, 2023. This pool contained eelgrass and the team saw several prey items being consumed. The tide level when this photo was taken was approximately 0.37 m.*

### 2.3. Public tour and presentation

A tour was held on June 9, and was attended by 22 family members and members of the wider community with an interest in birds and nature. The two youth successfully explained the project in an engaging and informative way. After the tour, the youth were presented with completion certificates, letters of reference and a one-hundred-dollar honorarium.

## 3. Discussion

Eagles and herons are visible in high numbers in the estuary during favourable low tides in June. If a significant portion of their populations are using the estuary at key times in their life cycle, and under predictable tidal conditions, then consistent annual observations could provide useful data on population trends.

The team collected data for three hours a day over a three-day period, following recommended best practices from past years. Future years' effort could likely be concentrated into a shorter period. It would likely be most effective to make observations during specific tidal levels that appear to be the most favourable, thus allowing observation periods to be as short as an hour. However, if resources allow, it would also be helpful to include more and differently timed observation periods (e.g., different dates in May and June), and observation periods for specific tides (e.g., very low tide, typical tide) and tidal levels, to try to determine the conditions that attract the highest annual number of birds. These

dates and times may be different for herons as compared to eagles. Based on our team's limited observations, tidal timing and preferred tidal levels may be different for these two species. More information would be needed to confirm this observation. It would also be helpful to confirm the prey species or hunting conditions that correlate with the highest number of birds. For herons, feeding on small fish in isolated pools with eelgrass appears to be the most important. Peak eagle concentrations were in the middle of the estuary, and it was not possible to see what (if anything) they were preying upon.

Data collection began in 2013 with the intent of measuring heron numbers. Eagle numbers were added to the data collection sheets because significant numbers of eagles were also seen. Depending on project goals, future data collection could be designed to determine the optimum sampling periods based on peak heron foraging times, or on the foraging habits of both herons and eagles.

If a robust methodology is established and ongoing annual observations are completed, the resulting data could provide a reliable annual indicator for the size of the heron (and/or eagle) population in the vicinity of the K'omoks Estuary.

### 3. Recommendations

The YER Phase I and Phase II program may collect heron and eagle data in future. Based on observations in 2023, it is recommended to:

1. Conduct data collection in June during tides from as low as 0.2 m to as high as 0.5 m, to optimize conditions for observing feeding herons.
2. If data for peak eagle numbers are desired, make observations one hour past low tide on a day when tide levels rise to between 0.35 and 0.5 m at one hour past low tide.

If additional resources are available, the following could be done to make the methodology more robust such that additional observations can indicate of the size of nearby heron and eagle populations over time:

1. Determine if both heron and eagle numbers are important, or if herons (or eagles) will be the focus for the data collection. (Numbers for both species can still be collected.)
2. Make observations multiple times in May and June, during the tidal levels and timing mentioned above, and during adjacent tidal levels and timing, to determine the best times to observe the highest annual counts of foraging herons (eagles).
3. Based on these multiple periods of observation, develop a detailed protocol for annual observations of foraging herons/eagles that captures the conditions and timing with the likely highest numbers of birds.
4. Enlist skilled volunteers to make the annual observations of foraging herons/eagles.
5. Share the data with local and regional governments and determine if there are correlations between the data and habitat conditions nearby, for example the availability of forested patches for heron colonies.
6. If more information on eagles is desired, reach out to eagle experts regarding local food availability and preferences to narrow down the best annual timing to observe the highest numbers of eagles in the estuary.

## 4. Conclusion

The project team collected heron and eagle data while providing a meaningful learning and mentoring opportunity to the two youth participants. In addition, all past data was collated and a methodology for future efforts was suggested. If citizen science efforts are standardized and conducted annually, these data could help land managers understand the potential impact of land use changes on the population of herons nesting adjacent to the K'omoks Estuary.

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## Appendix 1: Data

June 5, 2023. Wind: NW 30 km/h (variable). Temperature: 22 C. Weather: sunny and windy.

Crew: Cy, Hope, Tanis and Wendy

High Tide: 4.6 m at 05:33. Low Tide: 0.177 m at 13:23.

Highest count during observation period: Heron 20 Eagle 28. Later count of eagle at 14:35: 72 eagles.

Time	Royston North		Airpark		IHOS		Hospital		Comox Marina		Comox Bay	
	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle
10:13	0	0	0	1	0	0	0	0	0	0	0	0
10:33	0	0	2	2	2	0	0	0	0	0	0	0
10:55	0	0	0	0	0	0	0	1	0	0	0	0
11:15	0	0	0	0	0	0	2	2	12	0	0	0
11:36	0	0	0	1	0	1	0	1	0	6	0	0
12:12	0	0	0	0	0	1	0	5	19	2	0	0
12:32	0	0	0	0	0	0	0	0	0	6	0	0
12:53	0	0	0	0	0	0	0	7	0	3	0	0
13:12	0	0	0	0	0	0	0	2	0	23	0	0

Time	Goose Spit		Royston South		Royston Wrecks		Total Numbers		Notes
	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	
10:13	0	0	16	1	-	-	16	1	royston north 2 people on beach, big military plane doing circles for past 30 minutes, very windy
10:33	0	0	13	1	1	1	18	4	airplane still present, further away and less loud
10:55	0	1	0	0	1	0	1	2	wind calmer, no airplane, two people Royston north, two people IHOS. Eagle tried to land but too many people
11:15	0	0	0	0	1	0	15	2	lots of people at Goose Spit. Wind increased during time period to Mod. To high
11:36	0	0	0	1	1	0	1	10	stronger wind, GBH arrival at Royston Wrecks. Break for lunch
12:12	0	0	0	0	1	0	20	8	strong wind. People in IHOS in middle of estuary
12:32	0	0	0	2	3	0	3	8	human disturbance with eagle at Goose Spit. Dog disturbance with eagle at Royston South
12:53	0	0	0	1	8	0	8	11	herons incoming to Royston Wrecks. 4 eagles flying around Wrecks, heron fledgings present on wrecks, herons disturbed
13:12	2	1	0	2	6	0	8	28	



June 6, 2023. Wind: SE mild to moderate. Temperature: 18 C. Weather: sunny.

Crew: Cy, Hope, Tanis and Wendy

High tide: 4.5 m at 06:18. Low tide: 0.18 m at 14:09.

Highest count during the observation period: Heron 25 Eagle 50. At 15:12 51 eagles counted.

Notes on movement during the observation period: herons began arriving into the estuary at Royston N. during the 11:20 observation period. Herons moved from hospital to comox marina during the 12:00 observation period. some herons moved to Royston wrecks during the 12:41 observation period

Time	Royston North		Airpark		IHOS		Hospital		Comox Marina		Comox Bay	
	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle
11:00	0	0	0	1	0	0	0	0	0	0	0	0
11:20	3	0	6	0	1	0	0	0	0	0	0	0
11:40	0	0	3	0	0	4	4	4	0	0	0	0
12:00	0	0	0	0	0	1	7	9	15	0	0	0
12:20	0	0	0	0	0	2	0	0	12	4	0	0
12:41	0	0	0	0	0	5	0	15	0	2	0	1
13:00	0	0	0	0	0	1	0	4	6	5	0	0
13:20	0	0	0	0	0	0	0	16	8	3	0	0
13:40	0	0	0	0	0	0	10	10	2	2	0	1
14:00	0	0	0	0	0	0	0	9	4	31	0	0

Time	Goose Spit		Royston South		Royston Wrecks		Total Numbers		Notes
	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	
11:00	0	0	9	0	1	1	10	2	lots of sailboats at Comox. Wind mild
11:20	0	0	4	0	0	1	14	1	herons arriving at Royston N.
11:40	0	0	5	0	0	0	12	8	mild breeze
12:00	0	0	0	1	0	0	22	11	herons moving from hospital to comox marina
12:20	0	0	1	1	0	0	13	7	human and dogs disturbing eagles Royston S.
12:41	0	0	0	3	12	0	12	26	herons arriving to Royston wrecks
13:00	0	0	0	5	8	0	14	15	
13:20	0	0	0	2	6	0	14	21	
13:40	0	0	0	2	13	0	25	15	human and dog disturbance Royston S.
14:00	0	0	0	0	12		16	40	

June 7, 2023. Wind: Light SE. Temperature 22 C. Weather: Sunny.

Crew: Cy, Hope, Tanis and Wendy

High Tide: 4.4 m at 07:09. Low Tide: 0.316 m at 14:57. Highest count during observation period: Heron 35 Eagle 48

Notes on movement during observation period: herons moved into pool near wrecks over the observation period, same as in prior days. After tide came back in herons left estuary

Time	Royston North		Airpark		IHOS		Hospital		Comox Marina		Comox Bay	
	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle
13:00	0	0	0	0	3	0	11	3	0	0	0	0
13:20	0	0	0	0	3	2	17	1	0	0	0	0
13:40	0	0	0	0	0	2	17	0	0	2	0	0
14:00	0	0	0	0	0	1	2	1	0	1	0	0
14:20	0	0	0	0	0	0	2	7	0	0	0	0
14:40	0	0	0	0	0	0	3	20	0	1	0	0
15:00	0	0	0	0	0	0	0	6	2	22	0	0
15:20	0	0	0	0	0	0	0	11	0	19	0	0
15:40	0	0	0	0	0	0	16	11	0	0	0	0
16:00	0	0	0	0	0	0	0	9	0	22	0	0

Time	Goose Spit		Royston South		Royston Wrecks		Total Numbers		Notes
	Heron	Eagle	Heron	Eagle	Heron	Eagle	Heron	Eagle	
13:00	0	0	1	2	0	0	15	5	paddleboarders on mudflat near wrecks. Over 50 people in Comox Bay
13:20	0	0	1	2	0	1	21	6	disturbance in Royston S. Dog present earlier, fishermen and boat too
13:40	0	0	2	1	0	0	19	5	large group of people Comox Bay. Herons on alert due to two paddleboarders in hospital area
14:00	0	0	0	2	19	0	21	5	dog presence at airpark flats. About 20 heron squawking and moving down to royston wrecks, most likely disturbed by eagle(s). These heron were coming from hospital and circling. Dogs chasing birds at goose spit
14:20	0	0	0	1	23	0	25	8	
14:40	0	0	0	2	20	1	23	24	fishermen pulling up to land at Royston S. Paddleboarders and people walking there too
15:00	0	0	0	1	19	0	21	29	paddleboarders Royston S., with eagles nearby
15:20	0	0	0	1	1	17	1	48	
15:40	0	0	0	1	19	0	35	12	loud airplane potentially scaring heron at Royston wrecks
16:00	0	0	0	0	1	0	1	31	