

2021 Grant PUD / BPA Avian Monitoring Weekly Report 05/31 – 06/06/2021

WEEKLY ACTIVITIES & UPCOMING EVENTS

ACTIVITIES	DATE
Survey of Blalock Islands	06/01
Drone survey of Anvil Island	06/01
Survey of Potholes Reservoir: Goose Island	06/01
Survey of Lake Lenore	06/02
Survey of Sprague Lake	06/02
Boat and drone surveys of Astoria-Megler Bridge	06/02
Fixed-wing aerial survey: Troutdale Towers to Columbia River Estuary	06/03-06/04
Survey of Island 20	06/04
UPCOMING EVENTS	
Survey of Potholes Reservoir: Goose Island and North Potholes	06/07-06/13
Survey of McNary Pool: Badger, Crescent, Foundation, and Walla Walla River Delta islands	06/07-06/13
Survey of McNary NWR	06/07-06/13
Survey of Hanford Reach	06/07-06/13
Survey of Lake Lenore	06/07-06/13
Survey of Sprague Lake	06/07-06/13
Survey of Blalock Islands	06/07-06/13
Survey of Miller Rocks	06/07-06/13
Drone Surveys: Goose Island and Harper Island	06/07-06/13

COLONY MONITORING & WATERBIRD SURVEYS

Blalock Islands: The Blalock Islands complex was visited on June 1. Boat and drone surveys were conducted.

Anvil Island:

No Caspian terns were observed.

64 double-crested cormorants were observed loafing on the southern shoreline.

~468 nesting gulls were observed on Anvil Island. Although nest counts were unavailable this week, 3 gull chicks were observed on the southern shoreline. Counts of interior nesting gulls were not conducted due to vegetation obstructions. Gulls were observed flying to and from the island's interior. A drone flight captured imagery for all nesting colonies, and imagery will be processed to identify total counts of gulls and number of nests in the coming weeks.

Straight Six:

No colonial waterbirds were observed. Shoreline and interior vegetation have obstructed the interior nesting habitat from the boat’s vantage. Based on the OSU/RTR aerial survey on May 25 that confirmed an abandoned colony, it was still assumed that the gull colony on Straight Six failed for unknown reasons. Ongoing Civil Air Patrol flights in the coming weeks will confirm if gull activity resumes.

Long Island:

Long Island was submerged in 2-3 feet of water. No colonial waterbirds were observed.

Middle Island:

Middle Island was submerged in 2-3 feet of water. No colonial waterbirds were observed.

Southern Island:

Middle Island was submerged in 2-3 feet of water. No colonial waterbirds were observed.

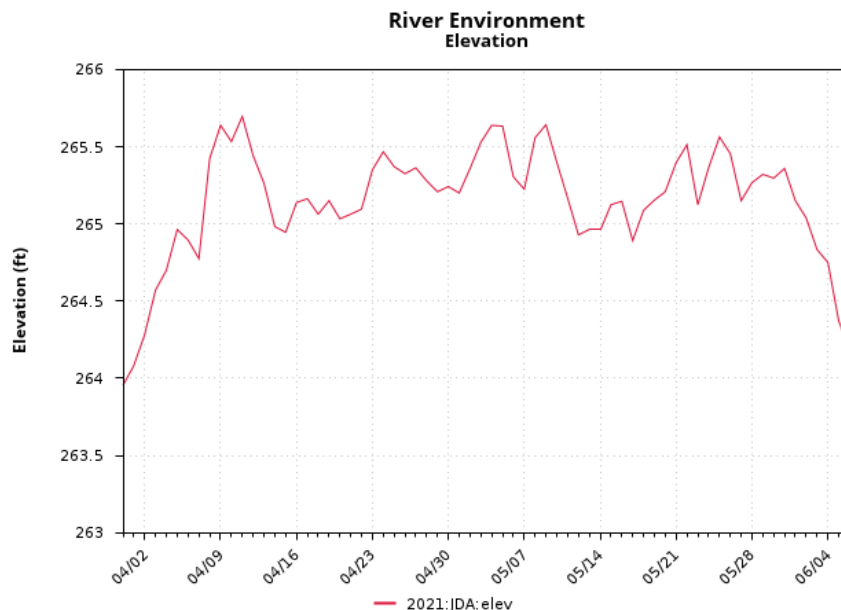
Rock Island:

3 Caspian terns, 9 American white pelicans, and 10 gulls were observed loafing on the only exposed rocky habitat on the eastern spit. Most of the spit, where colonial waterbirds have been observed this year, was submerged. No active Caspian tern nests were observed.

Basketball Island:

All nesting habitat at Basketball Island has been flooded. No colonial waterbirds were observed on the submerged island.

John Day Pool elevations this week (~265 ft) continued to be at elevations that flooded most of the former Caspian tern nesting habitat in the Blalock Islands complex (Long, Middle, South, and Rock islands). We present a John Day Pool elevation plot that shows pool elevations ranging between 264.5 and 266.5 ft from April 2 – June 5 (see *Figure 1* below).



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Figure 1. John Day Pool elevation from April 1 – June 6, 2021 when elevations were mostly above 264.5 ft.

Potholes Reservoir: Potholes Reservoir was visited on June 1.

Goose Island:

Caspian terns were counted in 12 different locations on Goose Island and its surrounding islets (see *Table 1* below). 90 Caspian terns and 15 scrapes were observed in a bare sand area along the southwestern shoreline of the island (i.e. Southwest Main). The Colony Area of Goose Island was an added location to *Table 1*, although none of the Colony Area has been visible during boat surveys this year. Further review of aerial photos confirmed that Caspian terns were nesting on the historic colony area during our earliest fixed-wing survey of Goose Island on May 5, 2021.

Table 1. Caspian tern counts by location at Goose Island from 4/21 – 6/01, 2021. [NA: Not Available]

Caspian terns							
LOCATION	04/21	04/27	05/04	05/10	05/17	05/25	06/01
Northwest Main	0	0	0	0	0	0	0
Northeast Main	0	0	0	0	0	0	0
Southeast Main	0	0	0	0	0	0	0
South Spit	0	0	0	0	0	0	0
South Beach	0	0	0	0	0	0	0
Colony Area ¹	NA	NA	NA	NA	NA	NA	NA
Southwest Main	34	7	40	21 ³	109	19	90
West Main ²	0	0	0	0	0	0	0
North Beach	0	0	0	0	0	0	0
East Rocks	0	0	0	0	0	0	0
Northeast Rocks	0	0	0	0	0	0	0
Northwest Rocks	0	0	0	0	0	0	0
Total	34	7	40	21	109	19	90

¹ Complete obstruction from boat vantage.

² Partial obstruction from boat vantage.

³ Nest dissuasion activities occurred during counts.

Detailed observations of the dissuasion flagging on Goose Island were also conducted on June 1, 2021. Flagging was least clumped and the most uniform in the Southwest Main area. Across most other locations of the island, the flagging was clumped and missing, resulting in large open patches. Caspian terns still occupied the bare sand area of Southwest Main that was largely absent of dissuasion flagging. Caspian terns were recently confirmed nesting in the historical colony area between Northwest Main and Southwest Main from aerial survey imagery on May 5, 2021 and May 25, 2021. Current status of flagging across 10 areas of Goose Island and its surrounding islets as of June 1, 2021 is provided in *Figure 2* below. Observations of flagging status for the historic colony area was conducted from aerial imagery taken on May 25, 2021.

Potholes Reservoir: Goose Island Dissuasion Flagging Status	
LOCATION	06/01
Northwest Main	C; W
Northeast Main	C; W
Southeast Main	C; W
South Spit	C; M; W
Southwest Main	P; M
Colony Area	P; W
West Main	B; C; W
East Rocks	C; W
Northeast Rocks	B
Northwest Rocks	N; M

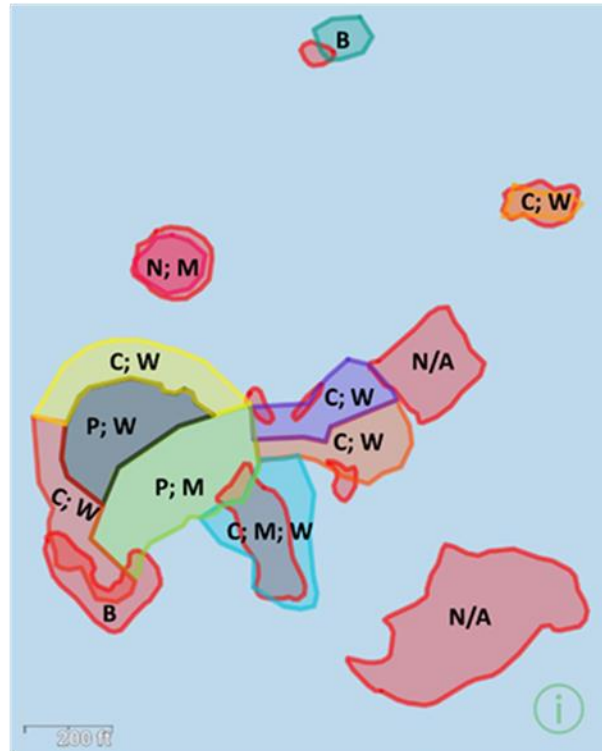


Figure 2. Table on left with location and dissuasion flagging status of each of the 10 areas on Goose Island. These 10 areas are delineated as polygons with flagging status abbreviated within. Abbreviations are: I = Intact; N = Not Clumped; P = Partially Clumped; C = Clumped; W = Wire; B = Bare Ground; M = Missing Flagging [N/A = late season areas currently underwater]

~3,480 gulls and 260 gull chicks were counted on Goose Island and the surrounding islets. Nest counts were unavailable this week. Few gulls were observed attending scrapes as chicks were becoming more mobile and estimated to be 2-4 weeks old.

Northeastern Potholes (Historic Caspian Tern Colony):

Northeastern Potholes was not visited this week.

Solstice Island (Historic Caspian Tern Colony):

Solstice Island was not visited this week.

Lenore Lake: Lenore Lake was visited on June 2.

North Rock Island:

2 Caspian terns were observed on the middle ridgeline of North Rock Island. Partial obstructions were present from the boat. Further analysis of aerial imagery from May 25, 2021 confirmed 5 Caspian terns and 4 tern nests on the ridge between the two nesting double-crested cormorant colonies. This is the first confirmed nesting of Caspian terns on North Rock in 2021.

~131 double-crested cormorants and 60 attended cormorant nests were counted on the island. 27 cormorant chicks were observed and estimated to be 2-3 weeks old.

~318 nesting gulls and 16 gull chicks (1 week old) were observed. Nest counts were unavailable.

Shoal Island:

~76 Caspian terns and 4 downy tern chicks were observed. These were the first tern chicks observed on Shoal Island this year. Nest counts were unavailable this week. Most terns were not observed in incubation posture. Vegetation and rock obstructions were also present. We will identify peak tern nest counts from fixed-wing and drone imagery in the coming weeks.

~261 gulls and 17 gull chicks were observed on Shoal Island. Nest counts were unavailable.

Unnamed Island:

2 loafing double-crested cormorants and ~280 nesting gulls were observed on the unnamed island located in the northern region of Lenore Lake. Attended nest and chick counts are unavailable this week.

Sprague Lake: Sprague Lake was visited on June 2.

Harper Island:

~2 Caspian terns were observed loafing on Harper Island. The interior Caspian tern nesting colony was not counted during this boat-based survey due to topographical and vegetative obstructions. A second drone flight is scheduled this week to survey this interior nesting tern colony.

During a boat survey, three active cormorant nesting colonies were observed. 481 double-crested cormorants and 175 attended cormorant nests were observed in two distinct nesting areas on the northwestern cove/ridge. Cormorant chicks were estimated to be 2 – 3 weeks old. On the southeastern bank, a tree-nesting colony was observed with 12 cormorants and 4 attended nests, although vegetation obstructions were present. No chicks were observed in the tree-nesting colony. 208 cormorants were also observed loafing on or near the island.

~118 American white pelicans were also observed loafing and foraging near the island.

~970 nesting gulls were observed on Harper Island. Attended nest counts were unavailable this week. No ring-billed gull chicks were observed. Most California gulls were observed with chicks estimated to be 2-3 weeks old.

Astoria-Megler Bridge: Astoria-Megler Bridge was visited on June 2.

Astoria-Megler (Boat Survey):

We conducted our second boat survey of the entire Astoria-Megler Bridge for nesting double-crested cormorants, Brandt's cormorants, and pelagic cormorants. For reference, we provide a key to individual bridge sections (see [Figure 3](#) below) and present nest counts observed by species and section (see [Table 2](#) below).

Nest counts, specifically for double-crested cormorants, during the June 2, 2021 boat survey were approximately half the number of nests from the peak count in 2020. While there may be concerns with changes in observers conducting bridge counts this year, we have experienced observers that counted nests for each bridge section. Prior to moving on to the next bridge section, observers checked that counts were within our accepted error range of 10%. Variation in counts between observers was often less than 10%. Thorough review of bridge sections and species identification were conducted prior to the survey. Validation of our nest counts will be provided with a subsequent boat survey scheduled during the week of June 14 – 20, 2021 and

from fixed-wing and drone imagery in the coming weeks. Our next boat survey will include both nest and individual counts by cormorant species.

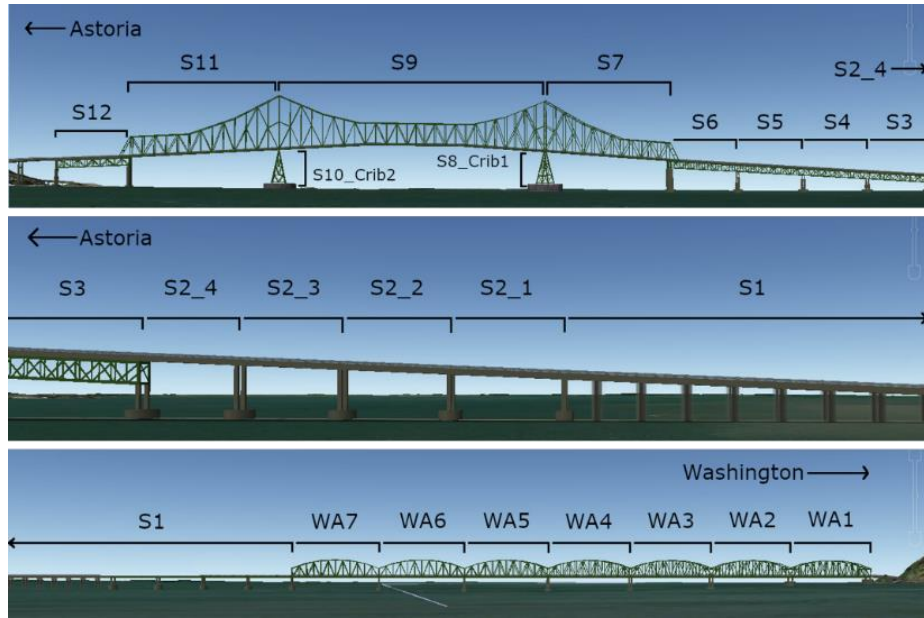


Figure 3. Survey sections for cormorant counts courtesy of James Lawonn (ODFW).

Attended double-crested cormorant nests were observed across most sections of the of the Astoria-Megler Bridge. The highest count (615 nests) was observed on the north crib (Section 8; see *Figure 3*). The north crib is where we established five plots to measure PIT tag detection efficiency prior to the breeding season. While some cormorants were still incubating eggs, other nests had chicks near fledging (~4-5 weeks old). In total, 2,944 attended double-crested cormorant nests were observed during the June 2, 2021 survey compared to 1,421 nests during the April 20, 2021 survey (see *Table 2* below).

Attended Brandt’s cormorant nests were observed in the most northern and southern sections of the Astoria-Megler Bridge and absent in sections 2.1 – 6. The highest numbers were observed on the Washington bridge sections. No chicks were observed as Brandt’s cormorants initiated nesting later than double-crested cormorants. In total, 955 attended Brandt’s cormorant nests were observed during the June 2, 2021 survey compared to 170 nests during the April 20, 2021 survey (see *Table 2* below).

Attended pelagic cormorant nests were only observed in sections 2.1 – 2.4. Chicks were observed and estimated to be 1-2 weeks old. In total, 74 attended pelagic cormorant nests were observed during the June 2, 2021 survey compared to 32 nests during the April 20, 2021 survey (see *Table 2* below).

Table 2. Provisional attended nest counts by cormorant species and bridge section from the North (Section WA 1) to South (Section 12) during two boat surveys (April 20, 2021 and June 2, 2021). Two observers conducted counts and values presented are the average count. [DCCO: double-crested cormorant; BRAC: Brandt's cormorant; PECO: pelagic cormorant]

SECTION	Cormorant spp. nesting on Astoria-Megler Bridge					
	4/20/2021			6/2/2021		
	DCCO	BRAC	PECO	DCCO	BRAC	PECO
WA 1	1	0	0	31	0	0
WA 2	2	14	0	58	108	0
WA 3	3	7	0	60	106	0
WA 4	2	0	0	59	103	0
WA 5	0	1	0	59	82	0
WA 6	14	12	0	133	105	0
WA 7	33	32	0	153	104	0
1	50	89	0	203	308	0
2.1	23	0	13	126	0	21
2.2	31	0	5	90	0	8
2.3	48	0	9	118	0	28
2.4	66	0	5	162	0	17
3	132	0	0	268	0	0
4	81	0	0	190	0	0
5	79	0	0	199	0	0
6	88	0	0	175	0	0
7	69	0	0	74	2	0
8	685	8	0	615 ¹	1 ¹	0
9	0	0	0	0	0	0
10	17	8	0	175 ¹	37 ¹	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
Total	1,421	170	32	2,944²	955²	74²

¹ Counts of nesting cormorants on north and south cribs will be validated by drone imagery in the coming weeks. Obstructions of cribs are present during boat counts.

² Observer counts from the June 2, 2021 boat survey will be validated during processing of drone and fixed-wing imagery.

Astoria-Megler (Drone Survey):

We conducted our second drone survey of the north crib of the Astoria-Megler Bridge on June 2, 2021 (see *Figure 4* below). No disturbances of nesting/loafing DCCO or BRAC from the drone flight or boat were observed. One flight around the entire crib was performed. Nest counts from drone imagery have not been conducted, although two observers estimated 615 double-crested cormorant nests during a boat survey on June 2, 2021 (see section 8 for June 2, 2021, in *Table 1* above). Counts from drone imagery for the north crib are expected to be more accurate and will be performed in the coming weeks.



Figure 4. Double-crested and Brandt's cormorants nesting on the north crib of the Astoria-Megler Bridge from a RTR June 2, 2021 drone survey.

The final OSU/RTR fixed-wing aerial survey in 2021, covering Troutdale Towers to the Columbia River Estuary, was conducted on June 3 and June 4. Updates on colonies surveyed will be provided in next week's report as images are currently being processed.

Island 20: Island 20 was visited on June 4.

~2,980 nesting gulls were observed on the island from a shore-based survey. The colony was split into two distinct breeding areas on the south-central end of the island (~2,440 gulls; see [Figure 5](#) below) and the north end of the island (~540 gulls; see [Figure 5](#) below). ~70 percent of adult gulls on the northern colony and ~20 percent of adult gulls on the southern colony attended chicks. Chicks were estimated to be 1-2 weeks old. Over half of the southern gull colony was still observed in incubating positions. We estimate that approximately 90% of the colony was visible from our vantage. McNary Pool levels appeared higher than last week and flooded most of the trees surrounding the island. This may have caused failure for a small satellite group of nesting gulls on the south end of Island 20.

18 American white pelicans were also observed loafing at the southern tip of Island 20.



Figure 5. Gull nesting areas (northern colony – red; southern colony – blue) on Island 20 from an aerial survey on May 25, 2021.

PIT TAGGING OF STEELHEAD AT ROCK ISLAND DAM

Steelhead smolt tagging began at Rock Island Dam on 04/09. As of 06/06, 5,535 hatchery and 1,600 wild steelhead have been tagged, totaling 7,135 steelhead smolts, reaching our target goal of ~7,000. We will continue to tag steelhead smolts as long as adequate numbers exist to ensure our sample is representative of the run at-large this year.