Bad River Natural Resources Department
Long Island Piping Plover Monitoring
2017 Season Summary

Prepared by Royce Galindo, Eric Andrews, and Devon Brock-Montgomery

Plover monitors conducted daily surveys, weather permitting, between 5/25/17 and 7/27/17. Please note that due to staffing challenges, there is some discontinuity within the data for this season.

Four nests were confirmed, and each saw psychological fencing and exclosures erected on 6/1. Of the four, one nest was abandoned. On 7/6, 9 chicks were banded, of which 7 chicks fledged successfully. The chicks hatched early this year, estimated around 6/26, and all chicks were observed flying by 7/27, which was also earlier than the average season.

Nest A

Lat/Long: N46.771195, W090.76463
Female: X,B:O,-
Male: O,b:X,-
Eggs: 4 found 5/27
Chicks hatched: 4
Chicks fledged: 3
Hatch date: Not observed, but estimated 6/24
Banding date: 7/6
Chick band combinations:

1. X,G/O:O(green dot),G241*
2. X,G/O:O(red dot),G242
3. X,G/O:O(yellow dot),G253
4. X,G/O:O(blue dot),G243

Both adults were seen incubating between 6/2-6/15. The female adult left Long Island between 6/15 and 6/19. From 7/13 on, only 3 of the 4 chicks were observed, chick X,G/O:O(green dot),G241* unaccounted for. The remaining chicks and adult were often seen using sites B and C for foraging purposes.

Visitation

Visitors and their boats often settled on the stretch of beach north of site A, though they anchored nearer the tree line than the nest site. Individual people often took walks southward down the beach, and were receptive to plover and dog information from monitors.

Site Description

Nest A was the northernmost nest on the beach. The nearest nest was 385 feet to the south and the farthest nest was 3,434 feet south. The dominant substrate was sand, and the dominant vegetation type was dune grass, of which there was very little surrounding the nest itself. Six large driftwood logs were scattered about the nest site.

Table 1 describes the A nesting area in measurements from the nest scrape to surrounding land features.

Attribute	Wash zone	Wrack line*	Cobblepan	Backwater	Treeline	Foredune
Distance from nest (feet)	107	30/64	64	n/a	410	54

*Debris from the "old" wrack line was washed far inland by large waves on the previous day: this is the smaller number. The thin, newly-formed wrack line is the larger number, farther from the nest and nearer the wash zone.

Figure 1. Panorama of nest site A. White arrow indicates nest enclosure.

Figure 2. Close up of nest A and enclosure.

Nest B

Lat/Long: N46.71109, W090.76361
Female: unknown
Male: unknown
Eggs: 1 found 5/29
Abandoned: Estimated 5/30

This nest was abandoned early in the season, cause uncertain. Plovers from site A have often been seen using this site for foraging.

Site Description

Site B was the only one with a backwater. It had the least amount driftwood logs scattered about (3) and one small willow bush. The surrounding sand had the highest percent cobble, at about 10%. Vegetation cover was about 40% dune grass.

Table 2 describes the B nesting area in measurements from the nest scrape to surrounding land features.

Attribute	Wash zone	Wrack line*	Cobblepan	Backwater	Treeline	Foredune
Distance from nest (feet)	97	27/87	12	88	431	11

*Debris from the "old" wrack line was washed far inland by large waves on the previous day: this is the smaller number. The thin, newly-formed wrack line is the larger number, farther from the nest and nearer the wash zone.

Figure 3. Panorama of nest site B. White arrow indicates nest enclosure.

Figures 4 and 5. Close up of nest B and enclosure (left). The single abandoned egg (right).

Nest C

Lat/Long: N46.70122, W090.75884
Female: X,-:O,Y
Male: O,B/O:X,-
Eggs: 3 found 5/31
Chicks hatched: 3
Chicks fledged: n/a
Hatch date: Estimated 6/30
Banding date: 7/6

The exact date the nesting pair left site C is unknown. A single adult plover seen was at C on 7/10, but without band ID, it is unknown if this was one of the nesting adults. The territory remained in use for the rest of the season, however. See Nest D for further information.

Site Description

Nest C had the most vegetation surrounding the enclosure, with about 65% dune grass cover. C was the nest farthest from its treeline (571 feet), and the nearest to its foredune (2 feet, right at its base). Seven large driftwood logs were scattered about the area. The monitors both agree that this territory appears to be the one that suffered most from erosion by waves.

Table 3 describes the C nesting area in measurements from the nest scrape to surrounding land features.

Attribute	Wash zone	Wrack line*	Cobblepan	Backwater	Treeline	Foredune
Distance from nest (feet)	69	25/64	4	n/a	571	2

*Debris from the "old" wrack line was washed far inland by large waves on the previous day: this is the smaller number. The thin, newly-formed wrack line is the larger number, farther from the nest and nearer the wash zone.

Figure 6. Panorama of nest site C. White arrow indicates nest enclosure.

Figure 7. Close up of nest C and enclosure.

Nest D

Lat/Long: N46.70489, W090.75552
Female: X,-:O,B/O/B
Male: X,-:O,-
Eggs: 4 found 5/25
Chicks hatched: 3
Chicks fledged: 4
Hatch date: Estimated 6/23
Banding date: 7/6
Chick band combinations:

1. X,G/O/G:O(blue dot),G244
2. X,G/O/G:O(yellow dot),G246
3. X,G/O/G:O(green dot),G247
4. X,G/O/G:O(red dot),G248
5. X,G315:O(blue dot),G/O/G*

On 7/3, 6 chicks (including one that may have been a Spotted Sandpiper chick) were observed with adults at nest D: potentially an unusual case of adoption of chicks from nest C. The next day 5 chicks were observed, and all were later banded. As of 7/13, only 4 chicks were observed, chick X,G315:O(blue dot),G/O/G* not accounted for. This chick was also the smallest individual of the brood, weighing in at 8 grams on the morning it was banded. These chicks and their adult used both sites C and D for foraging. As they became more independent, chicks were found spread all over the area, far from the adult and from each other. The last day the D female was seen was 7/13.

Visitation

Boats are rarely observed settling near this site, however visitors are often observed in the vicinity, crossing over from the other side of the island where there is a popular mooring site for recreational boaters.

Other Stressors

The wash zone at this end of the beach is more chaotic than that of the north, with small sandbars and troughs developing and disappearing nearly day-to-day. On the weekend of 7/16, powerful waves eroded large sections of the beach at C and D (see figures 12 and 14).

Site Description

Nest D was the southernmost nest on the beach. The nearest nest was 1203 feet to the north and the farthest nest was 3,434 feet north. The dominant substrate was sand, and the dominant vegetation type was dune grass, which provided about 50% cover. Eight large driftwood logs were scattered about the nest site.

Table 4 describes the D nesting area in measurements from the nest scrape to surrounding land features.

Attribute	Wash zone	Wrack line*	Cobblepan	Backwater	Treeline	Foredune
Distance from nest (feet)	108	64/97	64	n/a	328	61

*Debris from the "old" wrack line was washed far inland by large waves on the previous day: this is the smaller number. The thin, newly-formed wrack line is the larger number, farther from the nest and nearer the wash zone.

Figure 8. Panorama of nest site D. White arrow indicates nest enclosure.

Figure 9. Close up of nest D and enclosure.

Plover Behavior

One territorial dispute was recorded over the course of the season on 7/15, between the A and D males. Two chicks from site A were found foraging at site C, where the A and D males performed a parallel walk for several minutes. The dispute ended in the D male charging at the A male and driving him back up the beach. One intruder appeared at the tail end of the season: X,B:O,B/O interacted with both A and D males while foraging at all territories across the beach. The intruder persisted for two days and was aggressively driven away multiples times by both defending males. The intruder seemed completely uninterested in the chicks.

Predators

Evidence of potential predators found on the nesting beach include Merlin, American Crow, Common Raven, dog, coyote, Herring and Ring-billed Gull. A large gull contingent (containing 70-200+ birds) was often found less than 100 meters north of site A, with gulls sometime spilling into the site A boundaries. A smaller gull contingent (containing 20-100 birds) was often found less than 100 meters south of site D. A Merlin was first spotted on 5/29 and was seen a number of times since. See Appendix A for an array of photographs of predator tracks found on the nesting beach.

Banding

Banding occurred on the morning of 7/6/17, resulting in 9 marked chicks. This year's banding crew consisted of Sumner Matteson of the WDNR; members of the National Park Service, including Peggy Burkman; members of the Bad River Natural Resources Department, including warden Joseph Gokee and Devon Brock-Montgomery, who was the temporary fill-in plover monitor; and the two current plover monitors, Eric Andrews and Royce Galindo.

Figure 10. A chick from site D receives a band from Sumner Matteson while handled by Peggy Burkman.

Visitation and Human Impact

Please note that due to inconsistent observational coverage during the season, there are some gaps in the data concerning visitation and human use of Long Island. As such, treat these figures as a conservative estimate of total use of the island.

Visitor traffic was especially pronounced during the 4th of July weekend, with large groups landing on the beach to celebrate the holiday. Over the course of the season 43 boats were observed visiting Long Island with a total of 198 visitors. The busiest recorded day saw 48 visitors with

Figure 11. A paragliding visitor beaches near site D.

7 dogs. Of the total visitors observed, 50 were contacted by an attending monitor. A total of 22 dogs were observed, of them 21 off leash. When a dog was seen off leash, the monitor would contact the owner of the dog, who usually either immediately leashed the dog or left the beach. On rare occasions, dog owners refused to leash their dogs; in these instances, the monitor would pay close attention to the individual to make sure the dogs did not enter the enclosed nesting areas or harass any birds. On a single occasion on 7/3, two off leash dogs were observed inside a nesting area harassing chicks before the monitor was able to reach the owner. The owner, once contacted, immediately leashed the dogs and lead them away from the birds and the nesting area.

Low flying planes routinely passed over the beach, presumably heading to/from the Madeline Island airport. Planes were observed 15 times, with tail numbers recorded when possible. On occasion, planes were observed flying exceptionally low, where tail numbers were legible without binoculars.

Weather

There were 32 rain events in the area between 5/25 and 7/27, 16 of those being of thunderstorm status. The day that saw the most precipitation was 6/28 at 1.08 inches. The hottest day reached 82°F and the coldest day reached 37°F. The windiest day was 6/10, with 9 mph winds and 42 mph gusts. [1] One hail event occurred while a monitor was in the field, and one dense fog event prevented observations for most of a day.

Beach Geology

The water level of Lake Superior has been on the high end this summer. This caused beaches to narrow all around Long Island, submerging some beaches completely (like that to the southeast of Camp Plover). At the nesting beach, a "shelf" developed along much of the shoreline (see figure 12). This sharp dip between the dunes and the water, though less steep in some spots than others, made observing and counting plovers from the dunes more challenging, as the plovers could easily retreat and hide themselves completely behind the shelf after spotting monitors in the dunes. High winds and strong waves have caused these shelves to become taller and to move even farther inland. The psychological

fencing at site C suffered from erosion near the end of the season; the metal fence posts were retrieved from the water by both monitors on multiple occasions. The fencing was also partially taken down by waves on 6/15 and the posts were buried in sand. Refer to Appendix B for year to year satellite imagery of Long Island's beaches.

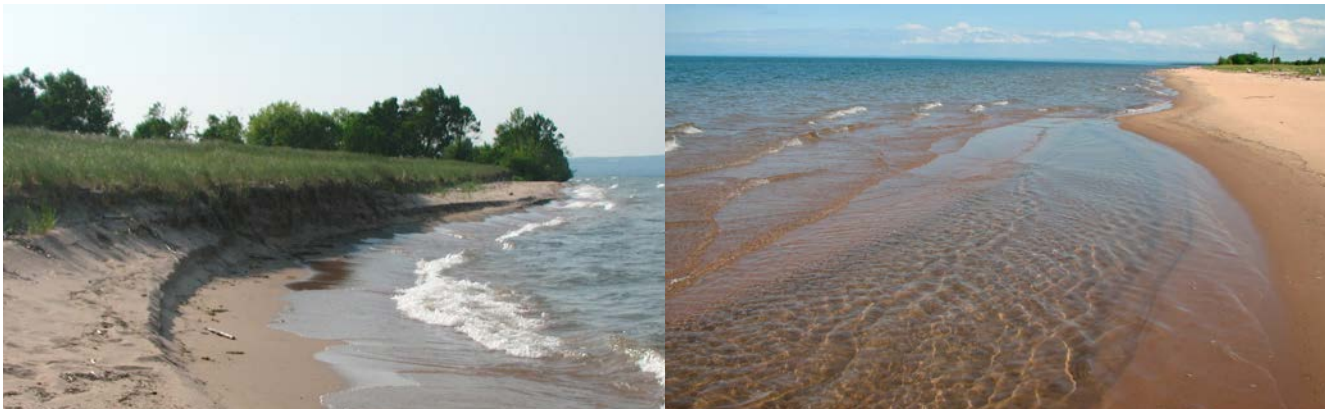


Figure 12, 13, 14. Page above: Shore erosion near site C; a clear shelf has formed along shore. Lower left: Erosion occurring near site A has caused a cliff over 5.5 feet to form right up to the dunes. Lower right: A new sand bar and trough near site D that formed overnight and was gone the next day.

Special Thanks

We would like to thank everyone involved who helped to make this season successful. Thanks to Sumner Matteson for venturing north from Madison to make banding happen; thanks to Peggy Burkman for coordinating with and assisting the plover monitors on the island; thanks also to Bad River NRD Wardens Bob Wilmer and Joseph Gokee for providing transportation to and from the island; thanks to Royce Galindo for providing the photos throughout this report; and a huge thanks to our partners: The National Park Service, U.S. Fish & Wildlife Service, the Bad River Tribe and Bad River Natural Resources Department, the Wisconsin DNR, the Nature Conservancy, the Johnson family and the WISKERD Corporation.

1. Weather history provided by La Pointe, WI weather station (KWILAPOI6) and Ashland Kennedy Memorial station (KASX). Accessed via Wunderground.com.

Appendix A: Predator and Other Tracks

Sets of tracks that were photographed on the lakeside nesting beach and the bayside beach.

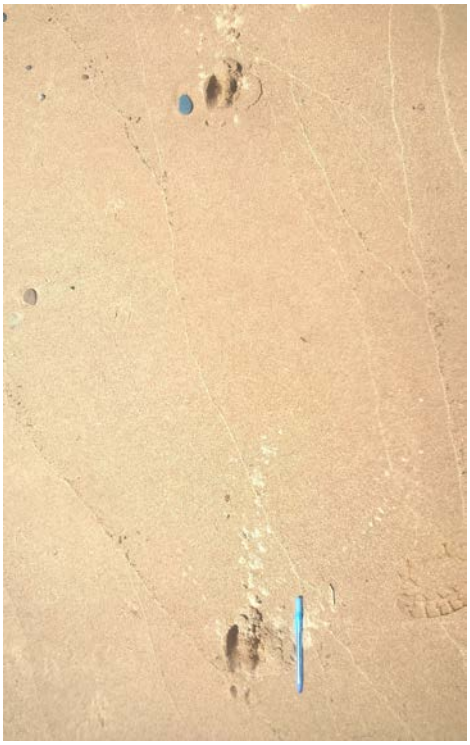
Figure 1. Several sets of American Crow tracks.

Figure 2. Several sets of gull tracks, feces, and feathers. A section of beach north of territory A was often observed in this condition.

Figures 3 and 4. Coyote tracks.

Figure 5. A mix of plover and sandpiper tracks.

Figures 6 and 7. Mustelid tracks: Weasel (left) and American Mink (right). Both found on bayside beach.



Figures 8 and 9. Black bear tracks (left) and deer tracks (right).

Appendix B: Changes in the Long Island Shoreline

Shoreline changes of the northern extent of Long Island between 1993 and 2015. Imagery by Google Earth.