Adult female with 13-day-old chick at Sauble Beach.
Brendan Toews

Piping Plovers in Ontario: A decade of recovery on the Great Lakes

John Brett

The soft piping and plaintive call of the Piping Plover (Charadrius melodus) was once heard on many beaches throughout the lower Great Lakes…

So began the article in the April 2008 issue of *Ontario Birds* that heralded the return of breeding Piping Plovers to the Canadian shores of the Great Lakes in 2007 after a 30 year absence (Toews *et al.* 2008). Since the article's publication, that plaintive call has been increasingly heard in Ontario as Piping Plovers have continued to expand and reclaim lost fragments of their former range throughout the Great Lakes, with historic breeding locations including Manitoulin Island and the shores of Lake Ontario once again supporting nesting pairs. The 2016 season marked the 10th year since the return of nesting Piping Plovers to the Ontario shores of the Great Lakes, and this article is a summary of annual breeding effort and recovery in the Canadian Great Lakes Population from 2007 to 2016.

Background

Piping Plovers are shorebirds in the family Charadriidae, which includes other plover species found in Ontario such as Killdeer (*C. vociferous*), Black-bellied Plover (*Pluvialis squatarola*) and American Golden-Plover (*P. dominica*). Their small size and proportions are similar to those of the closely related Semipalmated Plover (*C. semipalmatus*) — but the Piping Plover's pale face and upperparts, blending in with the dry sand on which it typically nests, are distinctive among Ontario's breeding plovers (Elliott-Smith and Haig 2004).

There are currently two subspecies of Piping Plover recognized: *C. melodus melodus*, which breeds along the Atlantic coast, and *C. m. circumcinctus*, which breeds further inland (COSEWIC 2013, NatureServe 2015). Within the *circumcinctus* subspecies, two populations are recognized in Canada: the Prairie Canada Population and the Canadian Great Lakes Population (Environment Canada 2013), which is part of the broader Great Lakes population that includes Michigan.

In the Great Lakes, Piping Plovers typically nest on wide sand and pebble beaches, often with dune, stream outlet, or beach pool components (Austen *et al.* 1994, Sandilands 2010, Environment Canada 2013, Government of Ontario 2013). Nests consist of a small scrape in the sand, in which a typical clutch of four eggs is laid over the course of a week. Once a complete clutch is laid, the

Sauble Beach territorial dispute.
Brendan Toews

Female from Toronto Islands, 2015. *David Beadle*

Predator exclosure to protect the nest from large predators. *Canadian Wildlife Service*

male and female will share incubation duties for approximately 26 to 28 days. Young Piping Plovers are precocial and are able to walk and forage shortly after hatching. Fledging typically occurs 21 to 35 days after hatch (Kirk 2013).

Habitat loss and degradation are ongoing threats for Piping Plovers on the Great Lakes as shoreline habitat continues to be lost due to development and shoreline hardening (COSEWIC 2013, Kirk 2013, Environment Canada and the U.S. EPA 2014), and the habitat that remains is vulnerable to recreational use and incompatible beach grooming which may make it unsuitable for nesting (COSEWIC 2013, Kirk 2013). Recreational use of beaches not only affects habitat suitability, but beach-goers, dogs and vehicles on the beach may cause direct disturbance to the birds (COSEWIC 2013). Predation is a significant threat throughout the plover's range (COSEWIC 2013), with Merlins (*Falco columbarius*), American Crows (*Corvus brachyrhynchos*) Ring-billed (*Larus delawarensis*) and Herring gulls (*L. argentatus*), Raccoons (*Procyon lotor*) and Red Foxes (*Vulpes vulpes*) among the most often-reported predators in Ontario (Kirk 2013).

Owing to these and other threats, the Great Lakes Piping Plover population declined throughout most of the 20th century and by the early 1980s, the population was reduced to as few as 12 pairs, all confined to Michigan (USFWS 2003).

Recovery Approaches

In 2006, the federal recovery strategy (Environment Canada 2006), which set goals and objectives for the recovery of the species in Canada, was posted on the

Species at Risk Public Registry (sararegistry.gc.ca). While nesting plovers had not yet returned to the Great Lakes shoreline of Ontario when the strategy was posted, it included approaches to prepare for their potential re-establishment. With the return of nesting birds in 2007, recovery measures were implemented, based on the approaches from decades of Piping Plover conservation in key U.S. Great Lakes states.

With the publication of the federal action plan for the Piping Plover in Ontario (Environment Canada 2013) and the Ontario government's response statement (OMNR 2014), specific actions to recover the Great Lakes Piping Plover in Ontario were formalized. High-priority measures in Ontario have largely fallen under three broad categories: protection and management, monitoring and assessment, and outreach and communication, and are aimed at addressing the key threats to Piping Plovers (Environment Canada 2013). Implementation of these measures has been led by staff at the Ontario Ministry of Natural Resources and Forestry (OMNRF), Environment and Climate Change Canada (ECCC) and Ontario Parks, with on-the-ground help from countless volunteers and organizations.

Protection and Management

In addition to the regulatory protection afforded to the Piping Plover through provincial and federal legislation, birds and their habitat are supported through on-the-ground conservation and management approaches designed to mitigate key threats. Nest disturbance and predation both reduce nesting success and are among the most significant threats to the Great Lakes population (USFWS 2003, COSEWIC 2013). To counter low productivity due to nest loss during the laying and incubation periods, a combination of predator exclosures and perimeter fencing has been used in the Great Lakes population consistently since 1988 (USFWS 2003), and in Ontario since the return of nesting in 2007 (Toews *et al.* 2008). Predator exclosures consist of a wire box built over the nest that prevents large predators from accessing the nest, with a mesh size (approximately 5 cm x 10 cm) large enough to allow adult plovers to pass freely. These large exclosures are typically installed over complete clutches and pairs are monitored following the installation to ensure that the normal incubation routine is resumed. Perimeter fencing has been used in concert with predator exclosures to provide a buffer that minimizes human disturbance to the nest and incubating adults. Between 1984 and 1999, the use of exclosures and fencing was found to increase hatching success from 37% to 72% (USFWS 2003).

Traditional beach management for aesthetic purposes, including raking and other grooming, can reduce the quality of habitat for nesting plovers (COSEWIC 2013, Kirk 2013). Land managers at beaches with breeding Piping Plovers help to develop and implement best management practices, including the preservation of natural beach cover and minimization of dune erosion, in order to maintain suitable habitat conditions (Heyens *et al.* 2012, 2014b). Encroaching invasive or woody species, including European Common Reed (*Phragmites*

australis) and willows (*Salix* spp.) have been removed from some beaches to ensure habitat remains suitable for nesting Piping Plovers (J. Benvenuti pers. comm., Davidson 2016).

Monitoring and Assessment

In addition to addressing the key threats, the Great Lakes recovery program includes a monitoring component. Monitoring is essential for assessing population trends and distribution at a range-wide scale and serves as a means of evaluating the success at individual sites. Individuals, pairs, nests and chicks are monitored and tracked, and the resulting information is utilized by the Great Lakes recovery program as a whole. Observations of Piping Plovers in Ontario, including those gleaned from Ontbirds and eBird reports, are compiled by the Canadian Wildlife Service and shared with partners in the United States for inclusion in Great Lakes-wide databases.

Central to the monitoring program is a banding scheme that aims to mark individuals in the Great Lakes population with colour band combinations for individual or brood-specific identification. Reports that include photos or descriptions of any observed bands are particularly useful for monitoring the population. Banding and subsequent sightings facilitate studies on breeding ecology (Roche *et al.* 2010), population modeling (Wemmer *et al.* 2001), migratory connectivity (Gratto-Trevor *et al.* 2012), survival (Ledee *et al.* 2010, Saunders *et al.* 2014) and site fidelity (Ledee *et al.* 2010), and allow agency staff and researchers to keep track of intra-population movements.

The International Piping Plover Census, which is conducted every five years throughout the Piping Plover's breeding and wintering ranges, provides a snapshot of distribution across the continent and allows biologists to estimate regional and global population sizes (Elliott-Smith *et al.* 2015). The breeding census consists of surveys in suitable habitat during a two-week period in June.

Outreach and Communication

Piping Plovers often nest in busy recreational areas, so communication with the public has been an essential part of recovery in the Great Lakes. Typically, the first points of contact for visitors to the beach are volunteers. Volunteers educate the public about the Piping Plover and its habitat needs, which helps minimize disturbance to breeding birds and their young. Volunteers serve as the eyes and ears of the recovery program by monitoring the birds from the moment they arrive in the spring (mid-April) until the last chicks depart in late summer (mid-August), thoroughly documenting and reporting breeding activity and any threats to the birds on the beach.

Results

An annual summary of nesting activity for the Great Lakes population of Piping Plover in Ontario from 2007-2016 is shown in Table 1.

2007

See Toews *et al.* (2008) for a complete synopsis of the 2007 nesting at Sauble Beach.

2008

The year 2008 saw the expansion of breeding Great Lakes Piping Plovers from Sauble Beach to two other sites. The season started with excitement as one of the birds that hatched in 2007 arrived at Wasaga Beach, accompanied by a banded adult from Grand Marais, Michigan (Heyens 2008). That initial pair was not relocated, but was replaced by two additional pairs at Wasaga, consisting of four banded birds from Michigan that nested adjacent to the highly developed beach strip area. The two nests marked the first documented nesting at the site since 1938 (Toews *et al.* 2008). Only one of eight chicks that hatched successfully fledged. Four chicks, including one in the process of hatching, were destroyed during a hail storm, two were killed by predators and one was believed to have died due to illness (Heyens 2008).

In early May, the nesting pair from 2007 at Sauble Beach was observed again near the 2007 nest location. Unfortunately, their first two nest attempts (two and three eggs) failed, with all five eggs taken by crows (Heyens 2008). A third attempt by the same pair yielded three eggs and fledged a single chick. An additional pair was located at nearby Oliphant Beach where a potential pair had been observed in 2002. The nest was successful and one chick fledged from a clutch of two eggs (Heyens 2008).

Table 1. Piping Plover breeding and success in the Canadian Great Lakes Population, 2007-2016.

Year	Breeding Locations[1]	Breeding Pairs[2]	Nests	Fledglings	Fledglings/Pair
2007	SB	1	1	3	3.00
2008	SB, WB, OB	4	6	3	0.75
2009	SB, WB, MI	7	7	15	2.14
2010	SB, WB	6	8	2	0.33
2011	SB, WB	5	5	9	1.80
2012	SB, WB	5	6	9	1.80
2013	SB, WB, MI	5	7[3]	11	2.20
2014	SB, WB, PE	8	11[4]	13	1.63
2015	SB, WB, MI, TI	10	10	13	1.30
2016	SB, WB, MI, DP, PP, GB	15	16	27	1.80
2007-2016 Totals		**66**	**77**	**105**	**1.59**

[1] SB: Sauble Beach; WB: Wasaga Beach; OB: Oliphant Beach; MI: Manitoulin Island; PE: Port Elgin; TI: Toronto Islands; DP: Darlington Provincial Park; PP: Presqu'ile Provincial Park; GB: Georgian Bay.

[2] Breeding pairs are defined as two birds exhibiting signs of breeding. If a nest is lost or abandoned and an individual pairs with a new partner, that is counted as an additional pair.

[3] While there were seven individual nests reported in 2013, it is likely that two of these were a single clutch that was interrupted by a storm event. See a description of this occurrence under the 2013 heading.

[4] While there were eleven individual nests reported in 2014, it is likely that two of these were a single clutch that was interrupted by a predation event.

2009

In July, a pair with four chicks was observed on Manitoulin Island, which marked the first documented nesting there in almost 40 years (Toews *et al.* 2008, Heyens and Robinson 2009). All four chicks from this successful nesting attempt were presumed to have fledged (Heyens and Robinson 2009).

In an effort to combat the egg predation observed at Sauble Beach in 2008, small predator exclosures were placed over nests immediately after a single egg was laid, which resulted in no eggs being lost to predators at this site in 2009 (Heyens and Robinson 2009). The first nest was found on 6 May, but by 15 May it was declared to be abandoned and the four eggs were collected. The female from that nest paired with a new male, laid four eggs, and two additional pairs nested and laid four eggs each. Ten of the twelve eggs hatched (the two that didn't hatch were collected), but three chicks were lost to one or more Merlins before fledging. Seven chicks fledged from Sauble Beach in 2009 (Heyens and Robinson 2009).

At Wasaga Beach, two pairs nested (including two adults from 2008 that returned to the site and found new partners), but only the first nest successfully hatched and fledged four young. The second nest was abandoned by the female and male after 50 and 51 days of incubation, respectively (Heyens and Robinson 2009).

This was an exciting year for Piping Plover recovery (Heyens and Robinson 2009). Overall, 15 chicks fledged in 2009 (Table 1) — a notable increase over the three chicks fledged in each of 2007 and 2008.

2010

In terms of reproductive output at Ontario sites, 2010 was the least successful year on record in the last decade, with only 0.33 young fledged per pair (Table 1). At Sauble Beach, two pairs nested. In June, the first nest of four eggs was predated by an unidentified digging mammal, despite being protected by an exclosure. To counter this, a "fox apron," which extends the exclosure under the sand out from the main box, was developed and included in subsequent installations at Sauble Beach (Heyens and Robinson 2010). This pair re-nested, but the nest was abandoned after 28 days of incubation for unknown reasons (Heyens and Robinson 2010). The second pair successfully hatched four chicks, but only one survived to fledge. While predation by Merlins was a significant concern in 2009, only one Merlin incident was reported in 2010; the cause of chick predation in 2010 was largely undetermined (Heyens and Robinson 2010).

Four pairs nested at Wasaga Beach in 2010. The female of one pair did not resume incubation following the installation of a predator exclosure on 7 June; the exclosure was removed immediately and the pair resumed incubation. The unprotected eggs were predated by crows and gulls later that week (Heyens and Robinson 2010), but the pair re-nested and fledged one chick from a brood of four, which successfully bred in Michigan from 2012 to 2015 (J. Rutter, pers. comm., Heyens *et al.* 2012). This was the only chick to fledge from Wasaga Beach in 2010; the remaining three nests (seven eggs total) were abandoned following the disappearance of an adult from each of

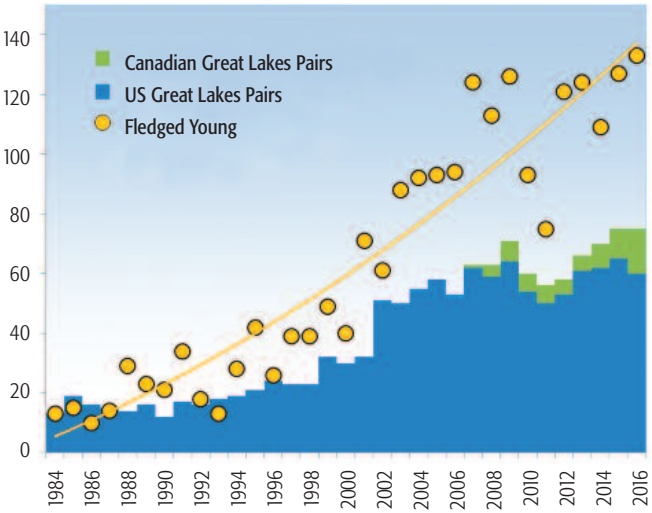

Figure 1. The number of observed breeding pairs and fledged young in the Great Lakes population by year and country, 1984 to 2016.

the three pairs. While the loss of these adults was not observed and the causes were not determined, most early-season nest abandonment has been shown to be due to the death of adults rather than desertion (Roche *et al.* 2010).

2011

Fifty-five pairs fledged 75 young across the entire Great Lakes in 2011, which was the lowest population-wide reproductive output from 2007 to 2016 (Figure 1). Despite the poor production overall, the five pairs in Ontario managed to fledge nine young (1.80 fledged per pair, 12% of the total Great Lakes output). At Wasaga Beach, three pairs nested and produced a total of five fledged chicks from three nests. Four fledged young were from a single nest and the fifth was the one chick to fledge from a brood of four that hatched on 9 June. The male from that pair was observed attacking one of his own chicks and by 21 June only the one chick remained. The clutch size for the third pair is not known; one chick was observed, but it was not relocated and was presumed not to have fledged (EC, unpublished data).Two pairs nested at Sauble Beach, and seven of the eight eggs hatched. Two chicks from each brood fledged.

The International Piping Plover Census was conducted in 2011, and agency staff and volunteers in Ontario surveyed 58 sites along the Great Lakes during the 4 to 17 June breeding census window. A potential additional pair at Wasaga Beach was observed during the census (Elliott-Smith *et al.* 2015), but the male from the pair was not relocated following the initial observation.

In 2011, a Piping Plover that had hatched in June 2009 at Wasaga Beach and was banded, was observed nesting at North Core Banks, North Carolina, USA. This is the first documented instance of a Piping Plover dispersing

from its subspecies range and successfully nesting in another subspecies range (Hillman *et al.* 2012).

2012

In 2012, nesting was once again limited to Wasaga and Sauble beaches. It was a season of high reproductive output, but was unfortunately one of high apparent adult mortality (Heyens *et al.* 2012). Six nests were initiated, yielding nine fledged chicks (three from Sauble Beach and six from Wasaga Beach), but six adults were lost over the course of the season. One adult was predated by a Merlin, another died following a territorial dispute with a neighbouring male, and the remaining four disappeared for unknown reasons (Heyens *et al.* 2012). The specimen from the territorial dispute, which was collected for analysis, showed signs of trauma associated with pecking (Heyens *et al.* 2012).

At Wasaga, the first nesting pair successfully fledged four young, after which they attempted to re-nest. Re-nesting after a successful nest is rare in Piping Plovers (Elliott-Smith and Haig 2004) and this was the first time that such an event was documented in Ontario (Heyens *et al.* 2012). Unfortunately, this second clutch of three eggs was not successful; the nest was abandoned for unknown reasons and the eggs were collected. The two other pairs laid four eggs each, but only five of these eggs hatched.

Twenty-nine day old chick at Sauble Beach. *Brendan Toews*

Of the three that hatched in one brood, two were able to fledge, and the third chick was predated by a gull. The two chicks from the last brood were also predated: one by a gull, and the other by a Merlin.

Two male birds that had hatched in Ontario were observed breeding in Michigan in 2012. The single bird that fledged from Wasaga in 2010 nested at Sleeping Bear Dunes, near Traverse City, and a bird that hatched in 2011 at Wasaga Beach fledged four chicks at Tawas Point State Park, near Tawas City (Heyens *et al.* 2012).

2013

The 2013 season was successful in southern Ontario, with "high chick recruitment and minimal loss of breeding adults" (Heyens *et al.* 2014a). Across Ontario, five breeding pairs fledged 11 chicks, the highest output since 2009, for an average of 2.2 fledged per pair (Table 1). In addition, three plovers that had hatched in Ontario were observed nesting in Michigan in 2013 (Heyens *et al.* 2014a).

After three consecutive years of nesting confined to Wasaga and Sauble beaches, 2013 saw the return of nesting birds to Manitoulin Island, where three young fledged from a nest of four eggs. The fourth chick died at the nest shortly after hatching.

Two pairs nested at Wasaga Beach, with seven of the eight eggs hatching. One chick was lost from each brood; one was reported to have been killed by an unidentified male Piping Plover, and the other disappeared for an unknown reason (Heyens *et al.* 2014a).

Six individual adult Piping Plovers were observed at Sauble Beach in 2013, and two pairs were formed. The first nest of the first pair, containing an unknown number of eggs, was washed away during a storm on 12 May. On 14 May, a single egg was found being incubated by the same pair in a scrape approximately 22 m from the original nest, and was likely part of the same clutch that was wiped out by the storm. This egg was abandoned around 16 May and was collected on 21 May. On 16 May, the pair was observed feeding, copulating and making scrapes at another location, and by 26 May a complete clutch of four eggs had been laid. Two of the eggs hatched (the other two were found broken outside the predator exclosure), but only one of those chicks was confirmed to have fledged; the fate of the other chick is unknown. The second pair hatched four chicks, but only two of those birds fledged. Predation was suspected for the other two chicks of that brood (Heyens *et al.* 2014a).

2014

Throughout the Great Lakes, 2014 was a successful year and there was overall high chick recruitment and low adult mortality in Ontario (Heyens *et al.* 2014b). A new breeding site was established at Port Elgin on Lake Huron, about 20 km southwest of Sauble Beach, where a complete brood of four chicks successfully fledged.

Despite the province-wide success, the four pairs (seven nests) at Sauble Beach were unable to fledge a single chick. A total of 23 eggs was laid, but nine were lost due to predation, three were abandoned after the female was presumed to

have been predated and five did not hatch for unknown reasons (Heyens *et al.* 2014b). The six remaining eggs (from three separate nests) hatched, but the young are suspected to have been predated — three of them by gulls in their first 24 hours (Heyens *et al.* 2014b).

Thirteen uniquely banded Piping Plovers were observed at Wasaga Beach, but only three pairs were formed. From the twelve eggs that were laid in three nests, nine chicks were successfully fledged (Heyens *et al.* 2014b).

In 2014, an analysis to assess contaminant burdens and toxicity risk was conducted on the unhatched eggs that had been collected from 2009 to 2013 in Ontario (Hughes *et al.* 2014). Twenty-eight eggs from Wasaga and Sauble beaches were analyzed for concentrations of contaminants including polychlorinated biphenyls (PCBs), which had been identified as a potential cause of reproductive impairment in the Great Lakes population (USFWS 2003, Environment Canada 2006). Eggs were analyzed as pools consisting of eggs collected from a single nest, with five and six pools collected from Sauble Beach and Wasaga Beach, respectively. Summed PCB concentrations were below 190 ng/g in all pools of eggs with the exception of one egg pool from Wasaga Beach in 2009 with a sum PCB concentration of 808 ng/g; the concentrations were determined to be below levels associated with adverse effects on reproduction in other bird species (Hughes *et al.* 2014).

2015

The 2015 season proved to be a milestone year for Piping Plover recovery in Ontario. After an absence of 81 years, nesting Piping Plovers returned to breed on the Canadian side of Lake Ontario with a four-egg nest at Hanlan's Point Beach on the Toronto Islands (Coady 2016). Unfortunately, the nest was washed out during a storm and the pair did not re-nest in Toronto. The year also marked the return of breeding Piping Plovers to the American side of Lake Ontario, where a pair of siblings that had hatched in 2013 at Wasaga Beach fledged a single chick in Jefferson County, near Watertown, New York (Mazzocchi and Truskowski 2015).

The initial nest at Manitoulin Island was lost to predation (S. Robinson, pers. comm.), but the pair re-nested and two of four chicks successfully fledged. Four pairs established four nests with four eggs each at Wasaga Beach, and twelve chicks hatched, producing eight that fledged. At Sauble Beach, 2015 was a slight improvement over the previous year as three chicks managed to fledge from four nests. Fifteen eggs were laid there, but only eight hatched; a clutch of four was washed out by a storm event, and a clutch of three was abandoned following the disappearance of the male (EC, unpublished data).

2016

The tenth year since the return of nesting Piping Plovers to the Canadian shores of the Great Lakes was an overall success for the recovery of the population. Based on reports of band combinations throughout the migration and breeding

season, at least 40 adults were observed in 2016 in Ontario (ECCC, unpublished data). Fifteen pairs were confirmed to have been formed, and a record 27 young fledged from 16 nests across a record six sites (Table 1). Young birds may be leading the expansion to new and historic breeding sites in Ontario; of the eight birds that bred at the three "new" sites in 2016, seven were birds that hatched in 2015 (87.5%). Only two of the 19 birds (10.5%) that bred at the previously established sites were hatched in 2015 (EC, unpublished data).

At Wasaga Beach, six pairs produced 21 eggs, of which 19 hatched (one disappeared during a storm and one was taken by a crow following the predation of the adult female). Fourteen young were confirmed to have fledged, which is the highest single-site output in Ontario since breeding plovers returned in 2007.

It was a poor year at Sauble Beach. Eighteen eggs were laid in five nests, but only six of those hatched. The first clutch of four eggs hatched, but the chicks were predated following the disappearance of the adult female. Three additional nests of four eggs each failed; the eggs from one nest were washed out and disappeared following a storm event, and the other two nests were abandoned following the disappearance of the male in each pair. The pair from the washed-out nest re-nested with a clutch of two eggs; they both hatched, but the young were predated by a crow and a gull.

Plovers once again returned to Lake Ontario in 2016, and the three successful nests at two provincial parks (Presqu'ile and Darlington) marked the first successful nestings on the Canadian shore of Lake Ontario since 1934 (Coady 2016). In June 2016, a nesting pair of Piping Plovers was observed on a small limestone island on Georgian Bay, bringing the total number of contemporary Ontario Great Lakes breeding sites to nine. The limestone bedrock on the shore of the island is not typical Piping Plover breeding habitat (Elliott-Smith and Haig 2004), and this appears to be the first time that nesting on a solid limestone substrate has been documented in the Great Lakes population (F. Cuthbert, pers. comm.). Two young from a clutch of four eggs were located and banded, but subsequent visits to this remote island were not made to confirm fledging success, so these chicks are not included in the count of fledged chicks for 2016.

Discussion

The last decade has been successful for both the province-wide recovery of Piping Plovers and for Ontario birds contributing to the overall growth and expansion of the Great Lakes population (Figure 1). In just ten years, the Canadian Great Lakes breeding population increased from one to 15 pairs and by 2016, 20% of all the pairs in the Great Lakes population were found in Ontario. At least 105 young have fledged in Ontario from 2007 to 2016, which represents 9.2% of the estimated total output across the Great Lakes in that period. An annual target of 1.25 fledged young per pair was identified in the federal recovery strategy for the *circumcinctus* subspecies (Environment Canada 2006); this total has been exceeded by the Canadian Great Lakes Population in

all but two of the last ten years (Table 1). In the U.S., the recovery criteria for the Great Lakes population includes a targeted five-year average fecundity between 1.50 and 2.00 fledged per pair (USFWS 2003); the current five-year average in Ontario (1.70 fledged per pair, 2012-2016) is within that range and is comparable to the U.S. average over the same period (1.79 fledged per pair).

Despite these successes, production has not been consistent at all sites in all years. Predation by gulls, crows, and raptors continues to be a problem throughout the Great Lakes and at Sauble Beach, in particular. While egg predation has been reduced and hatch success has increased with the use of predator exclosures, adults and chicks are still vulnerable to predation when outside of exclosures. Trials have been undertaken at Sauble Beach to test a variety of predator deterrent techniques (Hann 2014), each with limited success (C. Hann, pers. comm.). Although the loss of chicks to predators is difficult to control (USFWS 2003), options to mitigate the threat posed by predators going forward are being explored by MNRF and ECCC staff and other partners.

Opposite: Toronto and Region Conservation Authority staff setting up fencing at Hanlan's Point.
Canadian Wildlife Service

Toronto breeding male (left) and an unpaired female (right), 2015.
Jean Iron

With four nests in the last two years, the return of plovers to Lake Ontario appears to be well underway, yet some parts of the former range, including locations in Prince Edward County, remain unoccupied. Similarly, despite annual observations of plovers at sites such as Long Point (eBird 2016, ECCC, unpublished data), nesting has not yet been observed at any of Lake Erie's wide, sandy beaches. It is expected that the Canadian Great Lakes Population will continue to grow and plovers are anticipated to expand to other sites in Ontario, including these former breeding locations.

With one third of all North American bird species in need of urgent conservation action (NABCI 2016), it is refreshing to witness a recovery success story. It is hoped that the Piping Plover's call will continue to be heard throughout Ontario's Great Lakes shoreline in the decades to come.

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Finally, thanks to birders in Ontario for continuing to observe and report Piping Plovers on Ontario beaches each year. Their timely reports have allowed agency staff to keep a close eye on the expanding population and respond to protection and management needs quickly as new sites are occupied.

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John Brett
Environment and Climate Change Canada,
Canadian Wildlife Service
4905 Dufferin St.
Toronto, Ontario M3H 5T4
E-mail: john.brett@canada.ca