

Marine Bird Survey, Geojin Coast, Goseong County, December 4th-7th 2023. An internal report for the Hanns Seidel Foundation (Korea office).

Dr Nial Moores, Birds Korea, December 2023.

Introduction

From December 4th to December 7th 2023, counts were conducted of marine preferential bird species along the Geojin Coast, Goseong County; and video was taken of survey work and of some selected species for posting on You Tube by professional videographer Mr Kim Eojin. Weather conditions were generally bright and mild with light winds, though overcast conditions and rain showers late on the 6th were followed by stronger SSE winds on the 7th. Throughout, the Windy App indicated a sea surface temperature of c. 14C, though with temperatures as low as 8C closer to Wonsan.

Counts were conducted by Dr Nial Moores, Dr Bernhard Seliger, Ms Baek Minjae and Dr Jungmoon Ha, joined on 5th and 6th by Mr Adrian Gollner (a visiting Canadian artist conducting a project on birds of the Korean inner border as part of the DMZ Project). Our aims included: (1) updating the baseline for bird abundance and distribution of marine preferential bird species along the Geojin Coast established by our research between 2015 and 2017 (Moores et al. 2017), including identifying species which are likely showing an obvious population trend; (2) identifying major conservation issues which could be addressed by relevant decision-makers; and (3) once more, trying to raise awareness of the national and international importance of this area to marine preferential species, through blog posts and especially through You Tube and other social media, so that conservation measures might be understood and better-supported.

Bird counts followed the three survey methods developed for similar surveys conducted 12 times between late 2015 and early 2017 also funded by the Hanns Seidel Foundation (Moores *et al.* 2017, later re-presented by Choi et al. 2019): (1) counts (using binoculars) of all birds conducted from a rented boat, divided into ten-minute transects, with counts starting c. 1.5km out from the harbour; (2) counts of flying birds using tripod-mounted telescopes from an elevated fixed point position in the January Pension, Daejin, for 15 minutes before sunrise and for 105 minutes after sunrise (total time two hours), followed by a 10-15 minute count of birds on the water; and (3) counts along the coast from pre-selected points of all birds, again using tripod-mounted telescopes.

Each of these three count methods has its own strengths and weaknesses. Boat-based counts are especially useful for estimating distribution and abundance of birds more than 3km and up to (or >) 10km from the coast; fixed point counts pre- and post-sunrise are most valuable for counting species which commute each day across the inner border and for capturing some of the scale of migration up to 3-4km from shore; and counts from pre-selected, elevated points along the coast are important for documenting species like grebes which tend to remain close to shore (100m up to 4km).



Figure 1. Location of boat by 10-minute intervals during boat-based surveys on December 4th (red marker) and 5th (blue marker). On December 4th, the boat covered 45 km, reaching a maximum distance of 10.5km from shore. On 5th, the boat covered 30 km, reaching a maximum distance of 6.2km from shore. In total the survey covered a north-south length of c. 18km of marine waters.

As explained by Moores et al. (2017), there are many variables which affect the quality of count data gathered during each of the three types of counts, including e.g., distance at which birds remain visible, wind direction – either onshore or blowing birds away from shore - and wave height; the experience level of observers; and disturbance or provision of food by fishing activities. In addition, as so many birds are now known to migrate along the Goseong coast with some species also known to commute back and forth across the inner border, it is also impossible to know whether counts made on different dates or counts made through different methods refer to the same or different individual birds. Although an unknown number of individuals are likely missed each day, the day count for each species presented in Table 1 of the Results is therefore based on the highest day count of that species gathered primarily through one count method. This is the way that counts for species like Pelagic Cormorant *Urile pelagicus* are interpreted, because previous research confirms that this species commutes each day along the coast, with

birds visible flying south in the morning and flying back north in the afternoon. A “Total” count is also estimated for those species which appeared to be undergoing active migration, with substantial differences in numbers each day. This Total is an estimate based on the summing of counts of that species on different dates and with different methods, as these are considered more likely to involve different individuals. Examples of this approach include the Estimated Total of Rhinoceros Auklet *Cerorhinca monocerata*.

The results from our previous surveys, gathered and presented in accordance with the methods presented above, are presented at length in Moores et al. (2017). In combination, they already identified marine waters off the Goseong Coast as internationally important for seabirds, in that during the 12 previous surveys we recorded more than 20,000 seabirds five times, and at least six species in concentrations of 1% or more of population.

Results

1. Totals

During the present survey we again recorded more than 20,000 marine preferential waterbirds, with the sum of highest day counts of each species 21,386 and an estimated total of ~ 38,848 individuals during the four days. In all, 31-32 marine preferential species (Table 1) were observed, comprising selected Anatidae, and Podicipedidae, Laridae, Alcidae, Gaviidae and Phalacrocoracidae. The present survey compares with previous December counts in 2015 and 2016 of at least 23,299 and 36,739 individual marine preferential birds respectively.

Table 1. Highest Day Counts and Estimated Total of each marine preferential bird species recorded along the Goseong coast between December 4th and 7th 2023.

			Highest Day Count	Estimated Total
Brant Goose	<i>Branta bernicla</i>	흑기러기	2	2
Greater Scaup	<i>Aythya marila</i>	검은머리흰죽지	9	11
Harlequin Duck	<i>Histrionicus histrionicus</i>	흰줄박이오리	40	40
Stejneger's Scoter	<i>Melanitta stejnegeri</i>	검둥오리사촌	25	44
Black Scoter	<i>Melanitta americana</i>	검둥오리	1	3
Red-breasted Merganser	<i>Mergus serrator</i>	바다비오리	394	626
Red-necked Grebe	<i>Podiceps grisegena</i>	큰논병아리	175	251
Great Crested Grebe	<i>Podiceps cristatus</i>	뿔논병아리	441	655
Horned Grebe	<i>Podiceps auritus</i>	귀뿔논병아리	3	5
Black-necked Grebe	<i>Podiceps nigricollis</i>	검은목논병아리	7	7
Black-legged Kittiwake	<i>Rissa tridactyla</i>	세가락갈매기	108	208
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	붉은부리갈매기	1	2
Black-tailed Gull	<i>Larus crassirostris</i>	괭이갈매기	202	350
Common Gull	<i>Larus canus</i>	갈매기	1,216	1,500

Glaucous Gull	<i>Larus hyperboreus</i>	흰갈매기	18	22
Vega Gull	<i>Larus vegae</i>	재갈매기	287	600
Mongolian Gull	<i>Larus mongolicus</i>	한국재갈매기	3	3
Slaty-backed Gull	<i>Larus schistisagus</i>	큰재갈매기	62	150
Taimyr Gull	<i>Larus fuscus taimyrensis</i>	줄무늬노랑발갈매기	5	5
Thick-billed Murre	<i>Uria lomvia</i>	큰부리바다오리	1	1
Common Murre	<i>Uria aalge</i>	바다오리	2	3
Spectacled Guillemot	<i>Cepphus carbo</i>	흰눈썹바다오리	1	1
Long-billed Murrelet	<i>Brachyramphus perdix</i>	알락쇠오리	2	2
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	바다쇠오리	2,554	6,918
Least Auklet	<i>Aethia pusilla</i>	작은바다오리	2?	2?
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	흰수염바다오리	7,700	15,660
Arctic Loon	<i>Gavia arctica</i>	큰회색머리아비	1,280	1,820
Red-throated Loon	<i>Gavia stellata</i>	아비	4	10
Pacific Loon	<i>Gavia pacifica</i>	회색머리아비	4,575	6,770
Yellow-billed Loon	<i>Gavia adamsii</i>	흰부리아비	2	3
Pelagic Cormorant	<i>Urile pelagicus</i>	쇠가마우지	2,174	2,174
Temminck's Cormorant	<i>Phalacrocorax capillatus</i>	가마우지	90	1,000
		Grand Total	21,386	38,848

2. 1% or More

Based on Wetlands International (2023), three or four of these species were counted in 1% or more of a population during the present survey: Great Crested Grebe *Podiceps cristatus* (1% = 350; >1%), Pacific Loon *Gavia pacifica* (1% = 1,000: 4-7%), Pelagic Cormorant *Urile pelagicus* (1% = 250; 8%) and, for the first time during our surveys, perhaps Temminck's Cormorant *Phalacrocorax capillatus* (1%= 1,000). Please note that although populations of Rhinoceros Auklet *Cerorhinca monocerata* and other Alcidae used to be listed by Wetlands International (2017), these are not listed in Wetlands International (2023).

3. Changes between years

In total, six species were found in larger numbers than recorded in any of the 12 counts in Moores et al. (2017): Harlequin Duck *Histrionicus histrionicus* (44 compared to a peak of 35); Horned Grebe *Podiceps auritus* (five compared to zero); Glaucous Gull *Larus hyperboreus* (22 compared to a peak of 15); Pacific Loon (6,770 compared to a peak of 3,000); Rhinoceros Auklet *Cerorhinca monocerata* (15,660 compared to a peak of 2,500) and Temminck's Cormorant (90-1000, compared to a peak of only 50).

Eleven species were found in much lower numbers than were recorded in both mid-December 2015 and mid-December 2016 (and for most species, also in November and January in 2015 and 2016): Stejneger's Scoter *Melanitta stejnegeri* (44 compared to 115 and 171 in December 2015 and 2016); Black Scoter *Melanitta americana* (three compared to counts of 60 and 103 in December 2015 and 2016); Common

Goldeneye *Bucephala clangula* (zero compared to counts of 25 and 37 in December 2015 and 2016); Black-necked Grebe *Podiceps nigricollis* (seven compared to counts of 8 and 45 in December 2015 and 2016); Common Gull *Larus canus* (1,500 compared to counts of 9,000 and 14,000 in December 2015 and 2016); Glaucous-winged Gull *Larus glaucescens* (zero compared to counts of 7 and 3 in December 2015 and 2016); Vega Gull *Larus vegae* (600 compared to counts of 3,000 and 6,000 in December 2015 and 2016); Slaty-backed Gull *Larus schistisagus*, (150 compared to counts of 1,500 and 750 in December 2015 and 2016); Taimyr Gull *Larus (fuscus) taimyrensis* (five compared to counts of 30 and 12 in December 2015 and 2016); Spectacled Guillemot *Cephus carbo* (one compared to counts of 27 and 4 in December 2015 and 2016); and Pelagic Cormorant (2,174 compared to counts of 2,400 and 3,200 in December 2015 and 2016).

Declines in the three seaduck species – and especially in the two species of scoter - seem likely to be caused by a combination of local factors (including increased levels of disturbance following fence removal) and national / regional factors, as all are considered to be in long-term decline by Birds Korea (Moores & Ha 2022). Declines in gulls, can, at least in part, also be reasonably attributed to the loss of locally safe roosting sites through fence removal and infrastructure aimed at increasing human access to previously inaccessible areas, as well as by the absence of fish eggs washed up on to the beach. As with the scoters, the decline of Spectacled Guillemot appears likely due, at least in part, to increased fishing pressure, as numbers in all recent winters have been much lower than numbers recorded in the 2000s and early 2010s. They could also be the result, however, of warmer than average sea surface temperatures, as the species tends to winter in quite cold marine waters.

4. Selected Species Accounts, with Birds Korea National Status Codes

1) Brant Goose WV1

No longer considered a regularly occurring species in the ROK as there are fewer than 10 records in most recent years (Moores & Ha 2022; MOEK Winter census 1999-2022 in Kim 2023). Two were seen feeding around buoys perhaps c. 1-2km from shore. Fishing rafts close to shore seem also to be a preferred habitat in northern Japan and in Wonsan (Shimada et al. 2016; <https://www.birdskoreablog.org/?tag=wonsan-bay>).

Research shared on Facebook on November 23rd 2023 by Dr Ikeuchi Toshio and published in the *Yomiuri Newspaper* confirms that at least some of the tracked Brant Goose which stage in Hokkaido cross the East Sea to the DPRK coast, with our own observations there at both Rason and Wonsan Bay. Occasional birds seen along the east coast of the ROK (including a small flock in late October photographed near Ayajin) most likely also “belong” to that population.

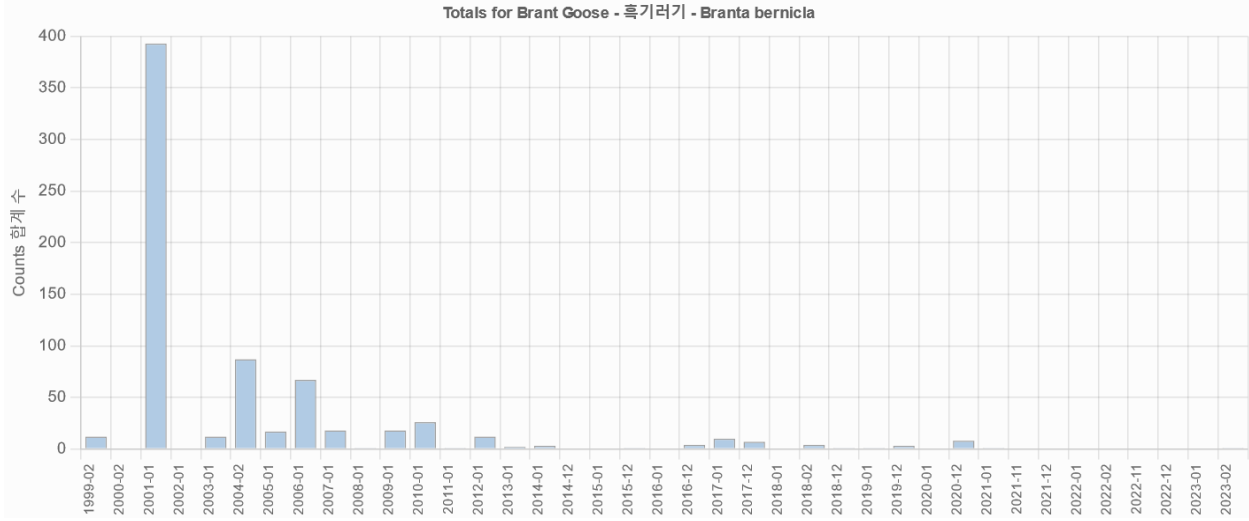


Figure 2. National totals of Brant Goose recorded during the winter census conducted under the auspices of the MOEK (from Kim 2023).

2) Harlequin Duck W4

Some individuals either commute across the inner border (as small numbers were seen flying south each morning) or instead the estimated total of 40 presented in Table 1 is an under-count, as it based only on counts of small groups seen feeding around fishing nets and maricultural areas along the coast on different days, mostly within 1-2 km of shore and in and around Daejin Harbour. An additional 7+ were also seen further south in Ayajin on the 6th. The counts during this survey compare with a mean of 40 nationally recoded by the MOEK Census during the last ten winters (Kim 2023), confirming the inadequacy of the National Census for identifying population trends in some species.

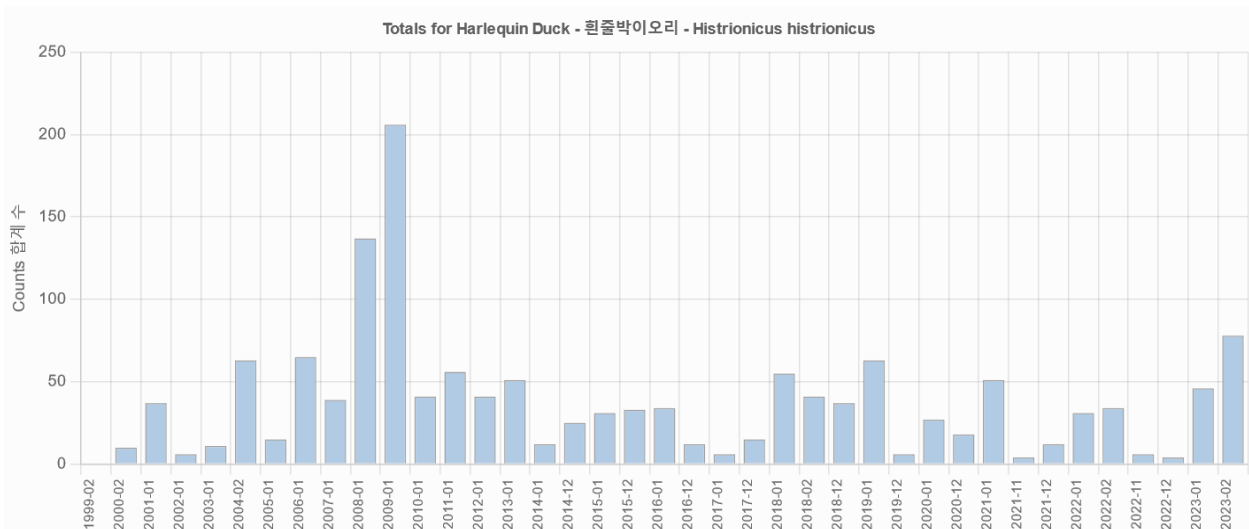


Figure 3. National totals off Harlequin Duck recorded during the winter census conducted under the auspices of the MOEK (from Kim 2023).

3) Stejneger's Scoter W4, SV2

The precipitous decline of this formerly locally common species continues both locally and at the national level - with an estimated total of only 44 recorded during the present survey, with a further c. 25 seen just south of the main survey area, off from Namdaecheon, Goseong, on 7th by most of the team members.

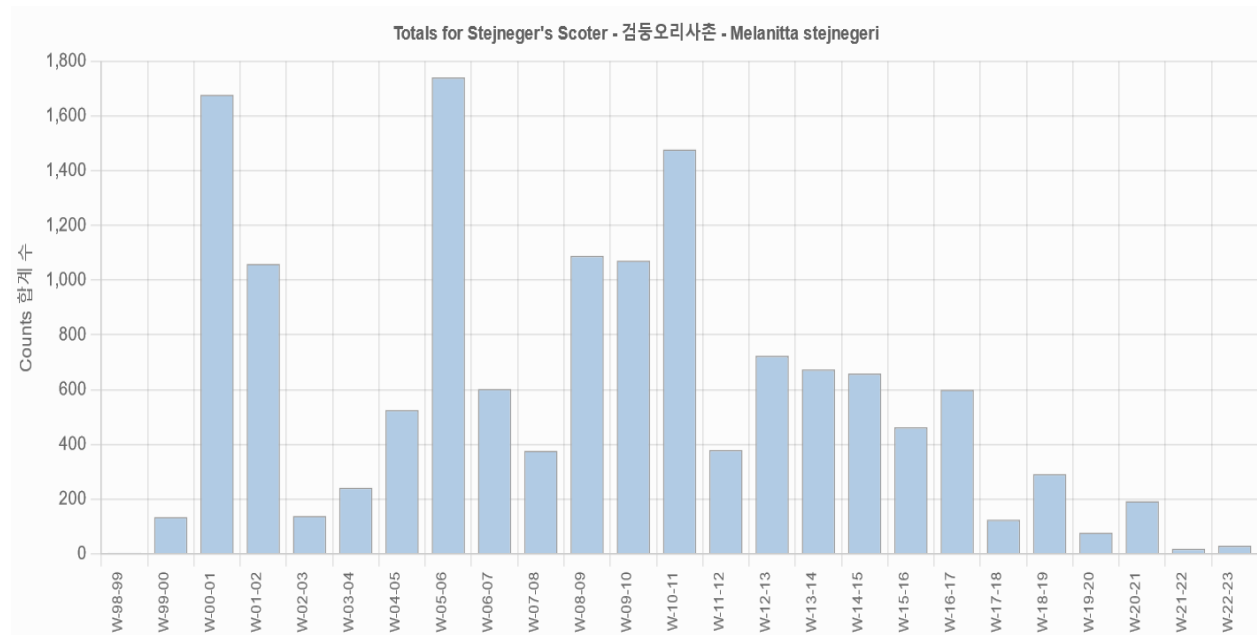


Figure 4. National totals off Stejneger's Scoter recorded during the winter census conducted under the auspices of the MOEK (from Kim 2023).

The small number recorded by this survey compares poorly with the 171 and 156 recorded in December 2016 and January 2017 (Moores 2017), the same two months in which none were recorded by the MOEK Winter census in either the Ganseong-Daejin Coast or Goseong Offshore count areas,

4) Black Scoter W4

Similar to the Stejneger's Scoter, the Black Scoter is undergoing a precipitous decline in the ROK in general and along the Goseong coast in particular. The species now needs to be assessed downward to W 5 (between 10 and 99 individuals nationally each year) in the next Birds Korea Checklist update.

5) Spectacled Guillemot W5

Following few records in recent winters, it seems that this species will need to be Grey-Listed in the next Birds Korea Checklist Update. The only observation was one in non-breeding plumage seen flying south past the January Pension on December 7th. This century, the species has only been regular in the ROK off

the Goseong coast, with birds likely originating from a small breeding colony in Haekumgang, DPRK where 56 were seen, including birds chasing each other into rocky crevices, on March 5th 2017 (Moore 2017), or further north up the DPRK coast. Previous Goseong and ROK national high counts were 90+ on January 5th 2009, 105 on February 16th 2011, and 80 on January 5th 2018, with most individuals concentrated in waters close to the Geojin headland (Birds Korea Archives).

6) Long-billed Murrelet W5, SV2

Two individuals were seen well from the boat on December 5th; and one or two probables were also seen from the boat on both 4th and 5th.



Long-billed Murrelet off the Geojin Headland © Kim Eojin

7) Ancient Murrelet W2 S4

As during previous surveys, the true number of individuals present within the study area is challenging to estimate because of the large numbers seen flying south (some of which then drop down suddenly to feed) combined with substantial differences in counts between dates, including of the same areas from the boat and from land. Importantly, although many birds were seen flying between feeding frenzies, no large flocks were seen purposefully moving north at any time of the day on any date.

Boat-based counts were 2,554 on December 4th and 1,301 on December 5th, with a large proportion of birds (probably >50%) on the former date seen flying south, and 224 settled or flushed birds counted between 12:48 and 14:29 when the boat was >5km from shore, far beyond the range of land-based counting. In addition, fixed point counts from the January Pension recorded 839 south between 07:15 and 09:15 on 5th; 365 south between 07:15 and 09:15 on 6th; and on 7th, 666 south between 07:15 and 09:15 and 614 south between 11:00 and 13:00. A total of 659 were also seen from shore on the 6th, and also on 6th, 132 were counted flying south past Ayajin (37km to the SSW of the January Pension) in only ten minutes at about 11:45

A conservative interpretation of the counts provides a highest day total of 2,554 based on the boat count on 4th, and 6,918 as an estimated total, based on a combination of the boat count on 4th, counts from the January Pension on 5th, 6th and 7th, and birds counted in feeding flocks along the shore on 6th. As many birds are either feeding or flying at distances too great to see from land, it seems likely that even this latter number will be a substantial under-estimate of the real number present in the study area between December 4th and 7th.

8) Least Auklet WV1

During the boat trips of December 4th and 5th, there were 2-3 sightings of 1-2 small alcids in flight >5km from shore which looked too pale and contrasting to be Ancient Murrelet and seemed more likely to be Least. However, views were inadequate to confirm identification.

9) Rhinoceros Auklet W3

Because of their larger size, dark plumage and tendency, in previous survey work at least, to feed and migrate largely within 5km of shore, numbers tend to be slightly easier to count and estimate than Ancient Murrelet. As with Ancient Murrelet, although many birds were seen flying between feeding frenzies, during this survey no flocks were seen purposefully moving north at any time of the day on any date

Boat-based counts were 796 on 4th and 2,078 on 5th while fixed point counts from the January Pension recorded 4,759 south between 07:15 and 09:15 on 5th; 2,577 south between 07:15 and 09:15 on 6th, and on 7th, 6,892 south between 07:15 and 09:15 (peaking with 3,990 between 08:10 and 08:30), “low hundreds still” between 10:30 and 10:45 (rounded down to 200); and 624 south between 11:00 and 13:00. In addition, 1,247 were seen on the sea from the Geojin headland on 6th; and 559 flew south past Ayajin in only 18 minutes at about 11:45 on 6th.

In this report, the fixed point count from January Pension on 7th is used to provide a highest day count of 7,700, similar to the highest national count of 7,000 contained in Park (2002). It was apparent that our survey coincided with a major movement of this species along this part of the east coast. A summing of the three days of counts from the January Pension provides a (very) conservative Total estimate of 15,660. It seems likely, however, that based on the available evidence probably closer to 25,000 were present between 4th and 7th along the Goseong Coast.

Wetlands International (2023) currently does not list any population estimate for this species. However, the species is considered to be declining (BirdLife International 2023) and a 1% population threshold of 13,000 was previously listed by Wetlands International (2017).

10) Arctic Loon W3 SV1

Most counts of loons were not made to species, because of the large numbers and the count conditions. Based on the rationale presented in the account on Pacific Loon, at least 1,280 Arctics were counted on the 7th (a combination of the fixed point count and 200 which remained on the sea in the late afternoon, north of the count line). Similarly, the estimated total can be conservatively estimated at 1,820.

11) Pacific Loon P3, W3, SV2

Dissimilar to most previous surveys, the vast majority of loons (an estimated 80% on most dates) seen appeared to be Pacific Loon on active migration, presumably following roost on adjacent marine waters. For example, fixed point counts of “loons sp” from the January Pension were 1,235 south on 5th between 09:15 and 11:15; 1,463 south on 6th between 09:15 and 11:15; and on 7th, 2,691 south between 07:15 and 09:15 and 2,712 south between 11:00 and 13:00 (suggesting both that movement remained at similar levels between 09:15 and 11:00; and that most of these later birds will likely have staged in DPRK waters). Although some winters there is strong evidence of loons, especially Arctic Loons, commuting each day, no strong evidence of this was observed during the present survey. In addition, 178 loons were counted flying south past Ayajin close to midday on the 6th in only 18 minutes, suggesting that the movement seen from the January Pension extended along a substantial stretch of the Gangwon coast.

In support of this assumption, boat-based surveys found only 225 loons (all species), including 92 Pacific on 4th and only c. 100-150 loons, including 35+ Pacific, on 5th. Counts from the coast did record slightly higher numbers but mostly on the 7th after the main southward movement had stopped. In the late afternoon of 7th, there were still 250 Pacific Loon off from Daejin Harbour (north of the line which was used for counting the southward movement). An additional 40+ were also still off from the January Pension.

Based on the above, it seems reasonable to use the January Pension fixed point counts as the main basis for developing an estimated total. On the 7th, 5,403 loons were counted flying south. 80% of this total (4,322), plus 250 offshore from the Daejin Lighthouse provides a highest Day Count of 4,575; while a summing of 80% of three days of southward movement (again plus 250 which remained on the sea north of the count line) provides an estimated total of 6,770. This is, without doubt, a substantial underestimate, but nonetheless probably represents one of the largest concentrations and movements of Pacific Loon (or of any loons) ever recorded in Korea.

12) Yellow-billed Loon W5, SV2

One was seen (distantly) from the boat on December 4th; and two were seen flying south from the January Pension during a major southward movement of loons on the 7th.

13) Pelagic Cormorant W3, R4

As recorded during previous surveys (e.g. Moores et al. 2017, Moores 2017), large numbers were counted commuting each day, flying south near to dawn and flying back north in the late afternoon toward Haekumgang in the DPRK where up to 3,000 roost on rocks. During fixed point counts at the January Pension, 2,174 flew south (and 29 north) between 07:15 and 09:15 on the 6th, and a very similar

2,169 flew south (and 10 north) between 07:15 and 09:15 on the 7th, with 1,900 of these then counted feeding within 1-2km of the January Pension. Although these numbers are slightly down on some previous counts, substantial numbers were seen moving south more than 15 minutes before sunrise (so were excluded from the counts).

14) Temminck's Cormorant R4, W4

During fixed point counts on December 6th and 7th, 976 and 1,245 larger cormorants respectively were counted flying south between 07:15 and 09:15. A large proportion of these were assumed most likely to be Great Cormorants *Phalacrocorax carbo*, because in previous surveys up to 400 Great Cormorants were noted moving regularly between Hwajin Po and marine areas along the coast to roost (and sometimes to feed); and the highest previous count of Temminck's Cormorant was only 50 (Moore 2017). During the present survey, however, large areas of Hwajin Po remained unfrozen; and all cormorants which were seen well enough to identify to species along the coast were Temminck's. This included 10 seen from the boat on the 4th; c.70 along the Geojin headland on 6th; and on 7th, 40 feeding offshore from the January Pension; and 50+ on rocks near to the Daejin Lighthouse. Although not checked carefully, 200-300 seen from the boat on the 5th sitting on the small island off from the January Pension also looked to be better for Temminck's than Great, with many very pale-breasted juveniles, and many showing extensive yellow on the "face" and bill.

Greater effort needs to be made during future visits to identify the larger cormorants to species. Although 90 can be safely listed as a day count, it seems possible that 1,000 or more might better be ascribed to Temminck's. Remarkably, the MOEK Winter census found 1,055 Temminck's Cormorant along the Ganseong-Daejin coast in December 2022, though only 182 in January 2023. However, the same census recorded a peak count of only 42 Great Cormorant in any year (Kim 2023).

Main Conservation Issues

Moore (2017) stated that, "Compared with much of the ROK East Sea coastline, the Goseong coast contains an effective, undisturbed marine sanctuary in the inner border zone; and has several undisturbed beaches and small islands. There is little evidence to suggest that current levels of disturbance are negatively impacting seabirds...". Since that time, fencing along the coast has been removed, and bridges have been built to two islands which prevent their use by roosting gulls and cormorants. The resultant increase in disturbance has very likely contributed to the decline in gulls in Goseong; and also to the ongoing decline of the two scoter species.

In addition, Moore (2017) stated that, "Degradation of the marine environment through over-harvesting of natural resources and other causes. There is plentiful evidence of a stressed marine environment in Goseong County, including the decline of the Walleye Pollock fishery; a rapid increase in destructive starfish; the scarcity of marine mammals; and the decline of both species of scoter. Some fishers have also commented that it is becoming increasingly difficult to maintain their livelihood. The success or failure and feasibility of various countermeasures, e.g. the import of fish fry for mass release as practiced during the Myongtae Festival in 2015, should be monitored, and the results made public each year." No evidence was seen during the present survey to suggest that pressures have been reduced on the marine

environment. A total of 113 fishing boats were counted from the balcony of the January Pension at 06:45 on December 6th. This is similar to, or more than, in previous years.

Moore (2017) also stated that, a threat is posed by “Fishery practices. There is evidence from the 2000s of high rates of mortality of seabirds and sea mammals along the Gangwon coast due to the use of gill-nets, discarded nets and other fishery practices... (between late 2015 and early 2017) we observed no dead seabirds in Daejin Harbour, but did see a small number of still-live birds entangled with discarded netting, including 2-3 gulls and a single Arctic Loon.”

During the present survey, one area of active fishing nets at 38.54800, 128.43062 held 13 drowned or drowning Ancient Murrelets, a drowned Red-necked Grebe and a drowned scoter. Images and some video was taken. This area was considered by Dr Jungmoon Ha to be an area used for holding fish that had been captured earlier. The design of the net included loosely overlapping mesh of green netting, sitting on or just below the water’s surface. Most of the birds were either trapped near the surface, or had dived under the netting and then found themselves unable to escape.

Future Actions

1. In the near-term, action needs to be taken about the drowning of seabirds by nets. As discussed during the survey, possible actions could involve HSF contacting with the environmental bureau and county officials in Goseong County; and also with officials within the Ministry of Maritime Affairs and Fisheries (and perhaps MOEK?). Dr Jungmoon Ha also stated that he would communicate with colleagues at SNU about this, to determine possible approaches to resolve this problem.
2. Positive actions taken to resolve the issue of seabirds drowning in nets needs, in the best case, to be part of a wider strategic approach to increasing awareness within Goseong County about the importance of the area for seabirds. If funding could be found, this could include e.g.,:
 - (1) Development of one or more targeted videos (and perhaps art work);
 - (2) Seminar(s) with local officials and fishing representatives; and perhaps with officials or researchers from relevant central government bodies;
 - (3) Re-launch of efforts to call for this area to be listed as a Marine Important Bird and Biodiversity Area. This could best be achieved through discussion with the EAAFP Secretariat; re-establishment of connections with Canadian and North American researchers on loons and Alcidae; and perhaps some engagement with relevant embassies in Seoul. As before, if political conditions allow, discussions on this Marine Important Bird and Biodiversity Area could also once more be extended to MOLEP in the DPRK, and become part of discussions on peace in the inner border area of Korea.

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