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**Management Report of Narębski Point
(ASPA 171) and Ardley Island (ASPA 150)
during the 2011/2012 period**

Management Report of Narębski Point (ASPAs 171) and Ardley Island (ASPAs 150) during the 2011/2012 period

Information Paper submitted to the Committee for Environmental Protection
(CEP XV Agenda Item 7a) by Republic of Korea

I. Introduction

This information paper is a survey summary on the ASPA 171 (Narębski Point) and its vicinity, and ASPA 150 (Ardley Island) to achieve the objectives and principles of the ASPAs' management plans during the 2011/2012 period. Census studies were carried out on the bird colonies in the ASPA 171 and 150. ASPA 150 was surveyed in collaboration with scientists from Jena University, Germany. Fauna and flora survey in the vicinity of ASPA 171 have been conducted for two consecutive years (XXIV ATCM/IP 115) due to its important ecological values.

II. ASPA Survey

1. Survey Period : 2011.12.06-2012.02.23

2. Survey Area : Narębski Point (ASPAs 171) and Ardley Island (ASPAs 150)

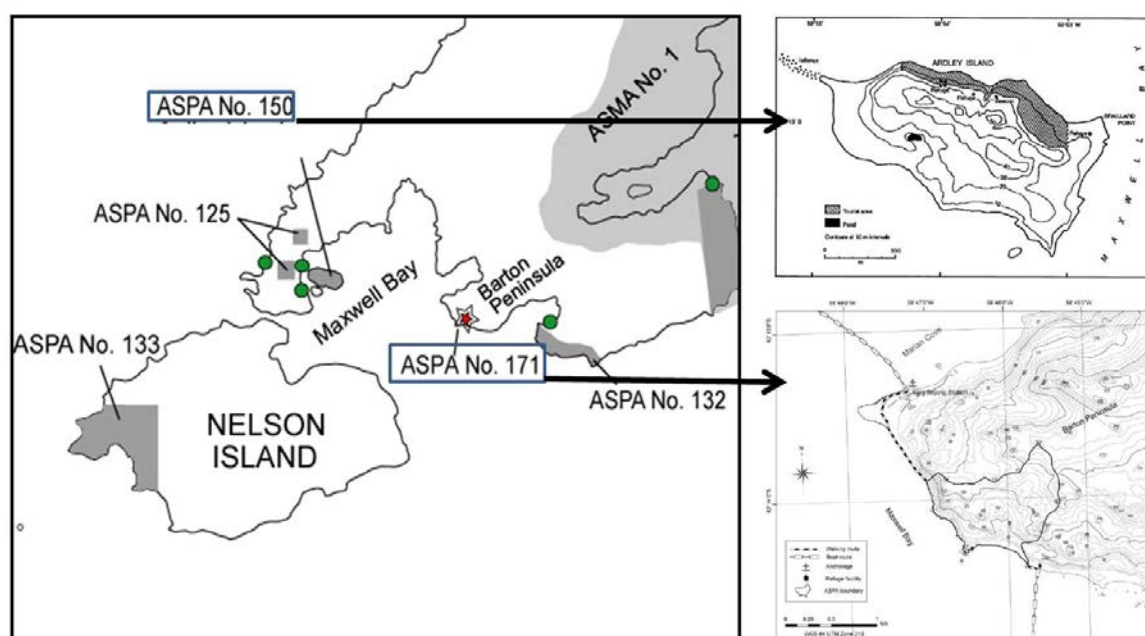


Figure 1. Map of survey area

3. Census on avian colonies and other fauna

A. Narebski Point (ASPA 171)

Survey confirmed that two species of penguins (Chinstrap penguin, Gentoo penguin) along with additional 10 species of birds including Brown skua, South polar skua, Southern giant petrel, Pale-faced sheathbill, Kelp gull, Antarctic tern, Wilson's storm petrel, Black-bellied storm petrel were breeding in the Area. In the penguin rookery, 3,161 pairs of Chinstrap penguins and 2,212 pairs of Gentoo penguins were breeding. Although 139 Gentoo penguin nests have decreased during the year 2010-2011, 549 Chinstrap penguin nests have increased. Compared to initial survey in 2006/07 for the designation of ASPA, nest numbers for Chinstrap penguin and Gentoo penguin have increased by 300 and 493, respectively. Although number of Gentoo penguin nests has decreased in year-on-year survey, overall number of nests for both penguin species has shown to increase after ASPA has been designated at the year 2009/10. Furthermore, less than 10 individual Adelie penguins and Antarctic fur seals were observed on the east sea shores. The findings suggest that these trends were results of changes in environmental factors such as abundance of food in the area as well as deceased number of visitors after designation of ASPA and visitors' compliance to all the obligations delineated in the access permit and management plan which lead to decline of obstructive factors.

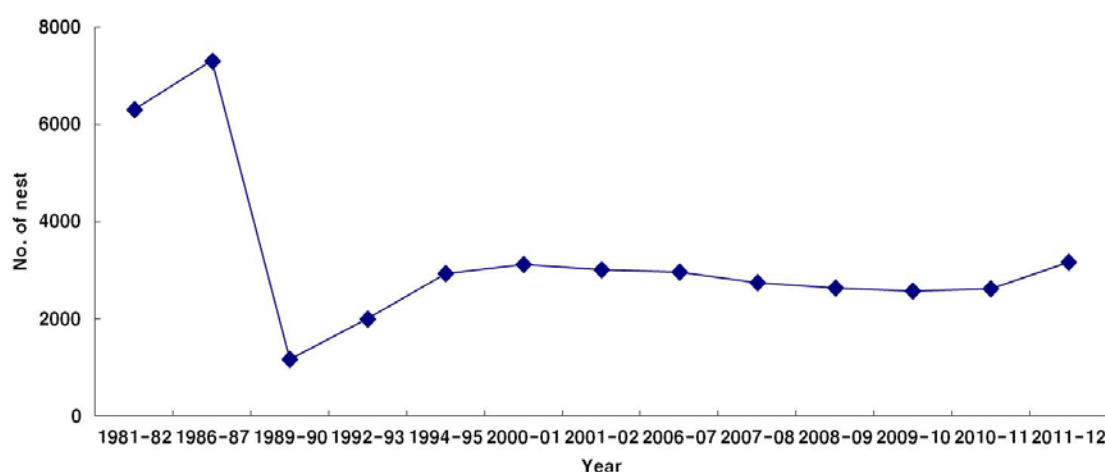


Figure 2. Changes in number of Chinstrap penguin nests

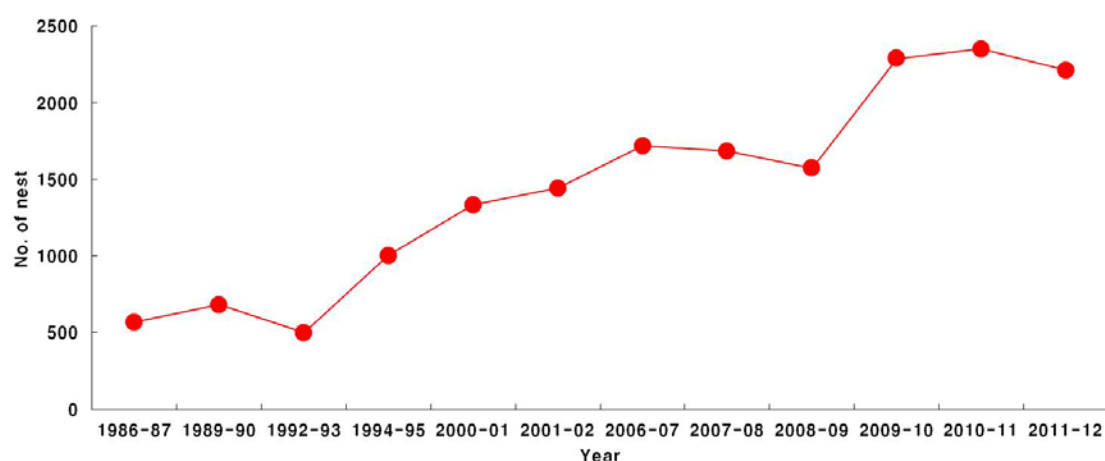


Figure 3. Changes in number of Gentoo penguin nests

B. Ardley Island (ASPA 150)

Survey on number of penguin nests were carried out in collaboration with avifauna research team from Jena University of Germany. Total of three species of penguins including Chinstrap penguin (11 nests), Adelie penguin (408 nests) and Gentoo penguin (5761 nests) were breeding in the penguin rookery in Ardley Island. The number of Gentoo penguin nests has increased in Ardley Island while the in Narębski Point has declined on year-on-year comparison. Compared to the previous year, the number of Chinstrap penguin and Gentoo penguin nests have increased by 3 and 158, respectively; Adelie penguins experienced decrease of 27 nests. Despite changes in number of penguin nests, the range of change was modest compared to Narębski Point.

4. Narębski Point (ASPА 171) Management Status

King Sejong Station has managed access to ASPA 171 rigorously. King Sejong Station leader has conducted training on environment of ASPA to all the researchers who visited the station. Research activities were carried out only by the researchers with access permission to the protected Area and researchers have performed researches in accordance with permission and management plan.

III. Survey on the Vicinity of ASPA 171

1. Survey Period: 2011.11.27- 2012.02.19

2. Flora

ASPА No. 171 border area has been designated based on penguin rookery and water zone. The result of 2 years monitoring of protected and surrounding areas, southeast coast of protected Area is a roosting site for penguins and is essential to the life cycle of penguin species. Furthermore, this area is evaluated as vital to the mammal ecology including penguins breeding in the area.

Although surrounding coast of protected Area and land ecosystem determining water zone are not part of ASPA No. 171 for ecosystem management, these areas, near penguin habitat, were included in this survey for vegetation as part of a buffer zone (Fig 2). Survey especially focused on analyzing penguin activities and marine mammal impact on vegetation distribution. To understand vegetation structure of survey area, 50 cm x 50 cm quadrat survey was conducted at a total of 172 points. At each point, habitat conditions which could affect vegetation, including altitude above sea level, distance from coast, gradient, substrate type, and geomorphology were described. Based on results of the survey, current vegetation structure is being analyzed, and a vegetation map is being prepared. In addition, flora survey results will be utilized in the protected Area management and monitoring in ecological perspective.

3. Fauna

Fauna survey was conducted 7 times, semimonthly from mid November to end of February on the southeast coast of the protected Area. 4 orders, 6 families, 12 species of birds and 1 order, 2 families, 3 species of seals were observed in the survey area. Young Gentoo penguins left their habitat and travelled to the coast, leading to large increase in number of penguins observed in the coast. Areas around freshwater lakes were used as roosting site of South polar skuas and hauling site of Antarctic fur seals. A group of southern elephant seals used east end of coast as its refuge site. Starting the mid January, Antarctic fur seals were observed and were seen to increase in numbers drastically. On year-on-year comparison, Antarctic fur seals increased by 62 and southern elephant seal increased by 15 in numbers.

4. Evaluation on significance as fauna habitat

The survey has shown that the vicinity of ASPA 171 plays a critical role as a habitat for the penguins in ASPA 171 after the incubation and parental care period. This area also serves as roosting and hauling sites for skuas and pennipeds. Although penguins spend most of their incubation and parental care period in the main habitat, Narębski Point (ASPA 171), young penguins leave the breeding area and move to the coast with adults as they reach adolescence. In addition, young penguins spend this period at the coast of the vicinity area to adapt to underwater environment prior to leaving for overwintering habitat. The current protected area designated in Narębski Point is about 1 square kilometers in area. However, penguins would cross the boundaries of the Area after the parental care period and expand their radius of activities along the coast. Thus, in order to protect penguin population more effectively, extensive areas including the post-breeding habitat and roosting sites need to be properly managed.

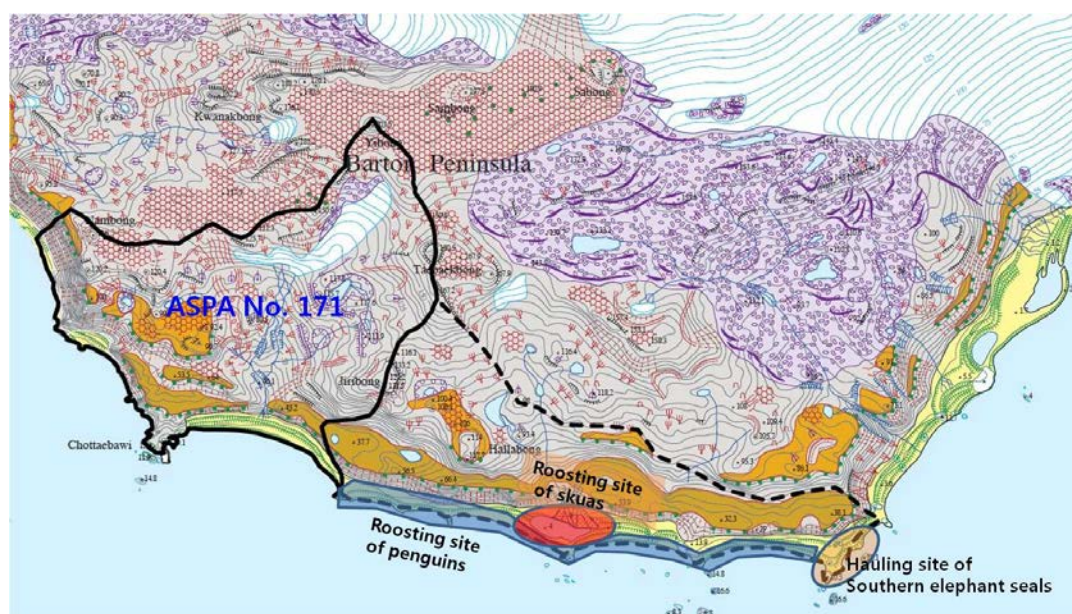
Despite observation of a small number of pinnipeds in ASPA 171, several Southern elephant seal groups were sighted at the southeast end of coast. In addition, Antarctic fur seals were observed throughout the coast starting end of January. Nonetheless, due to the fact that their habitat is located 2 km away from Narębski Point boundary, Antarctic fur seals were not included in the list to be protected and managed. Freshwater lakes within survey area are preferred areas of non-breeding individuals of the South polar skua and the Brown skua. Skuas gather around the lakes for drinking and bathing, and also to seek their mates. In conclusion, the surrounding areas of Narębski Point, being considered as ecologically critical habitats of diverse fauna, should be protected and appropriately managed.

Table 1. Avian fauna in the vicinity of ASPA 171

Species	Date								
	2011			2012					
	27 Nov	10 Dec	25 Dec	05 Jan	22 Jan	05 Feb	19 Feb	Total	Peak Count
<i>Pygoscelis papua</i>	18	31	13	6	23	90	123	304	123
<i>Pygoscelis antarcticus</i>	3	5	14	10	30	10	33	105	33
<i>Pygoscelis adeliae</i>	2	-	1	1	-	-	-	4	2
<i>Catharacta lonnbergi</i>	9	-	5	6	7	4	2	33	9
<i>Catharacta maccormicki</i>	45	34	27	13	37	31	14	201	45
<i>Larus dominicanus</i>	27	21	35	5	4	2	-	94	35
<i>Sterna vittata</i>	10	17	11	16	-	-	-	54	17
<i>Sterna paradisaea</i>		3	-	-	-	-	-	3	3
<i>Macronectes giganteus</i>	1	1	2	6	-	-	2	12	6
<i>Daption capense</i>	1	6	4	-	-	-	-	11	6
<i>Oceanites oceanicus</i>	-	-	-	-	-	-	2	2	2
<i>Phalacrocorax bransfieldensis</i>	-	-	1	-	-	-	-	1	1
Total	116	118	113	63	101	137	176	824	176
No. of Order	3	3	4	3	2	2	3	4	
No. of Family	4	4	5	4	3	3	4	6	
No. of Species	9	8	10	8	5	5	6	12	
Species Diversity (H')	1.68	1.47	1.90	1.69	0.87	0.81	0.97	1.64	

Table 2. Mammals in the vicinity of ASPA 171

Species	Date								Peak Count
	2011			2012					
	27 Nov	10 Dec	25 Dec	05 Jan	22 Jan	05 Feb	19 Feb	Total	
<i>Arctocephalus garzella</i>	-	-	-	-	2	2	95	99	95
<i>Mirounga leonina</i>	1	11	15	27	42	54	29	179	54
<i>Leptonychotes weddellii</i>	-	-	-	-	-	1	-	1	1
Total	1	11	15	27	44	57	124	279	150
No. of Order	1	1	1	1	1	1	1	1	
No. of Family	1	1	1	1	2	2	2	2	
No. of Species	1	1	1	1	2	3	2	3	

**Figure 2. Roosting sites of birds and hauling site of seals in the vicinity of ASPA 171**

IV. Recommendations

1. Survey up to now has focused on changes in numbers of birds and mammals within the ASPA and its vicinity. However, in order to understand changes in species numbers, analysis on environmental factors should be accompanied. Since numbers of nests and clutch sizes are sensitive to climate during breeding season and abundance of food, it is recommended to install AWS (Automatic Weather System) to monitor regional climate and understand how climate change impact on the marine productivity.
2. For the evaluation on the ecological importance of Narębski Point vicinity, 2 years of monitoring have been conducted to provide scientific data. According to survey results, surrounding coastal area, currently not included in ASPA 171, is evaluated to be highly ecologically critical area of fauna. These areas coincide with purpose of protected area, thus, fauna habitats and flora found in Barton Peninsula in King George Island should be properly protected and managed.