

Observations of Thick-billed Murres (*Uria lomvia*) and Other Seabirds at Cape Parry, Amundsen Gulf, N.W.T.

STEPHEN R. JOHNSON¹ and JOHN G. WARD²

ABSTRACT. The Thick-billed Murre colony near Cape Parry, Northwest Territories, Canada, is the only murre colony in the western Canadian Arctic and is isolated to a greater extent than any other murre colony in the world. We conducted a brief but intensive survey of this colony on 1 and 2 August 1979 and recorded over 700 Thick-billed Murres, 16 Black Guillemots and 2 Common Murres. Some murre eggs were seen on the cliffs but a reliable measure of production was not determined. The number of Thick-billed Murres counted was much greater than reported several decades earlier and the sightings of Common Murres were new for the Beaufort Sea.

Key words: Thick-billed Murres, Arctic, Beaufort Sea, Cape Parry, N.W.T.

RÉSUMÉ. La colonie de marmettes de Brünnich près de Cape Parry, dans les Territoires du Nord-Ouest, au Canada, est la seule colonie de marmettes dans l'ouest de l'Arctique canadien et est plus isolée que toute autre colonie de marmettes au monde. Nous avons effectué un recensement court mais détaillé de la colonie les 1 et 2 août 1979, comptant plus de 700 marmettes de Brünnich, 16 guillemots noirs et deux marmettes communes. Il restait encore quelques oeufs de marmette sur les falaises mais il fut impossible de déterminer un taux de reproduction sûr. Le nombre de marmettes de Brünnich fut beaucoup plus élevé qu'il ne l'était il y a plusieurs décennies et ce fut la première découverte de marmettes communes dans la mer de Beaufort.

Mots clés: marmette de Brünnich, Arctique, la mer de Beaufort, Cape Parry, les Territoires du Nord-Ouest

Traduit pour le journal par Maurice Guibord.

INTRODUCTION AND STUDY AREA

The Thick-billed Murre (*Uria lomvia*) colony near Cape Parry (70°11'15''N; 124°44'45''W), Northwest Territories, Canada, is the only murre colony in the western Canadian Arctic and is isolated to a greater extent than any other murre colony in the world (Tuck, 1961; Brown *et al.*, 1975; Sowls *et al.*, 1978). The nearest murre colony is on Prince Leopold Island, northeast Somerset Island, N.W.T., approximately 1200 km to the east. Cape Lisburne, Alaska, the nearest murre colony to the west, is approximately 1500 km away.

The history of the murre colony near Cape Parry has been reviewed by Tuck (1961) and Johnson *et al.* (1975). The main purpose of our brief study (25 July – 5 August) in 1979 was to document bird use of the Cape Parry area prior to possible shore-based development in that area by the oil industry. In this paper we discuss new information concerning seabirds near Cape Parry.

The Parry Peninsula extends approximately 100 km into Amundsen Gulf in the far southeastern portion of the Beaufort Sea. This part of the Beaufort Sea, and especially Amundsen Gulf, is a rich marine area that supports large spring and summer populations of marine mammals and birds (Stirling and Cleator, 1981). Historically, a polynya has existed near Cape Parry throughout the winter (Smith and Rigby, 1981:24-25), but in the past several decades this polynya has apparently been located farther offshore than in previous years (T.W. Barry, pers. comm. 1979).

The tip of the peninsula and the adjacent complex of islands are rough and rocky areas with basalt hills. Little vegetation is

present except in low-lying wet areas. Few terrestrial species occupy the outer portion of the peninsula; however, caribou (*Rangifer tarandus*), grizzly bear (*Ursus arctos*), several species of smaller mammals, and tundra and cliff-nesting birds have been recorded (Ward, 1979).

METHODS

As part of a general wildlife inventory of the northern portion of the Parry Peninsula during summer 1979, we conducted a brief but intensive survey of the seabird colony at Police Point, on the western tip of the Parry Peninsula (Fig. 1).

Between 2000 h MST on 1 August and 2200 h MST on 2 August, hourly counts were conducted of the Thick-billed Murres and other seabirds present at three subcolonies at Police Point. These counts were conducted from three observation areas, each located approximately 100 m from the murres (Fig. 1). Each hourly count was made by one observer who successively recorded numbers from the three observation areas. The presence of murre eggs or young also was recorded. At 1100 h MST on 2 August, subcolony 4 was discovered and included in the hourly counts.

On 2 August between 2000 and 2030 h MST the cliffs at Police Point were surveyed by boat to determine the extent of their use by murres and the extent of their visibility from the shore-based observation posts. Synchronous with the boat survey, all murres visible on the cliffs were counted between 2000 and 2100 h MST. Reactions of murres to disturbances were recorded during all phases of our survey. Our estimate of

¹LGL Limited, environmental research associates, 10943 University Avenue, Edmonton, Alberta, Canada T6G 1Y1

²Dome Petroleum Ltd., P.O. Box 200, Calgary, Alberta, Canada T2P 2H8

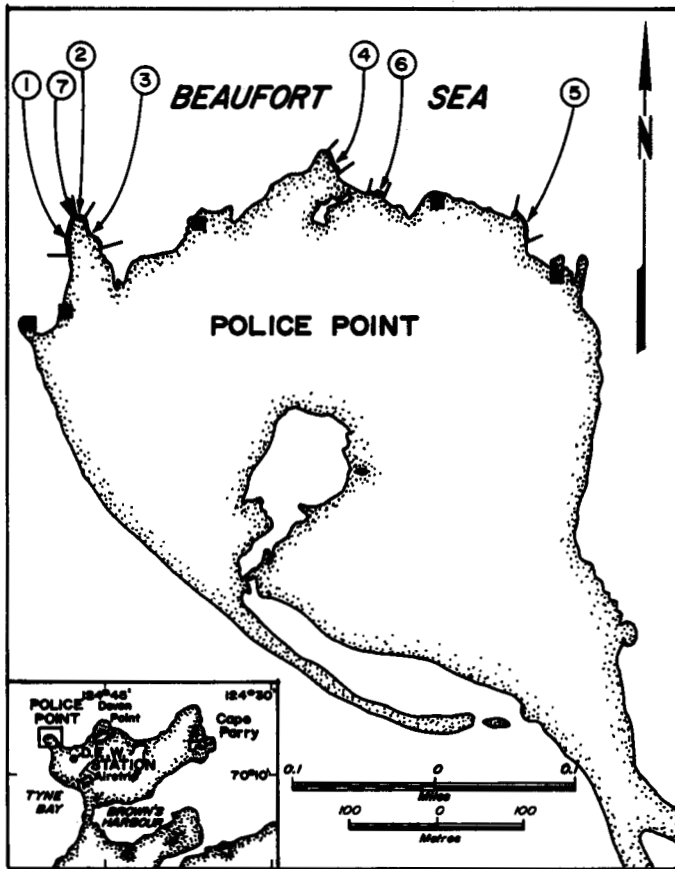


FIG. 1. Location of Cape Parry and Police Point, N.W.T., and locations of the seven Thick-billed Murre subcolonies and the five observation areas.

the breeding population is based on counts of murres that were judged to be incubating (see Birkhead and Nettleship, 1980, for details of methods).

Weather conditions during our 26-h visit to Police Point were excellent. Except for a 2.7-h period when the sun set, it was relatively warm (range of hourly temps: 8°C at 2000 h MST to 4°C at 0146 h MST) and sunny. The winds were from 100° to 110° throughout our visit to the colony; they varied from gusts of 45 to 53 km·h⁻¹ at 2000 h MST to 18 km·h⁻¹ at 0146 h MST.

RESULTS AND DISCUSSION

Table 1 summarizes the numbers of Thick-billed Murres counted at the various subcolonies or in the water adjacent to the colony during the 26-h census period. Counts at subcolonies 1, 2, and 3 (Fig. 1) suggested that numbers of murres at the colony peaked around 0500 to 0600 h MST. Approximately 700 Thick-billed Murres were counted on the cliffs in subcolonies 1-4 and on the water adjacent to the colony during 2000-2100 h MST on 2 August. Adjusting this number to account for the time of peak abundance using the following equation:

$$\text{Total \# murres in subcolonies 1-4 peak h} = \left[\frac{\left(\frac{\text{Total \# in subcolonies 1-4 at hour } x}{\text{Total \# in subcolonies 1-3 at hour } x} \right)}{\left(\frac{\text{Total \# in subcolonies 1-3 at peak hour}}{\text{Total \# in subcolonies 1-3 at peak hour}} \right)} \right]$$

we estimated that over 800 adult and subadult murres may have been present at the colony (total at subcolonies 1-4 and at sites 5-7) at the peak hour. The period of peak attendance by murres at the Police Point colony generally corresponds to that described by Gaston and Nettleship (1981) for the late incubation period at Prince Leopold Island.

During the hourly counts no young were recorded and only seven different Thick-billed Murres actually were seen incubating eggs. Gaston and Nettleship (1981) found that hatching of Thick-billed Murre chicks had commenced at Prince Leopold Island, N.W.T., well before 2 August in 1975 through 1977. Since we saw no chicks on the ledges, it is possible that 1979 was a year of late hatching for murres at Police Point, but it is more probable that we did not observe the subcolonies for enough time to identify young that may have been present (see Birkhead and Nettleship, 1980; Gaston and Nettleship, 1981). Furthermore, the waters near Cape Parry are low arctic in character and those near Prince Leopold Island are high arctic. This factor also may influence the timing of breeding by Thick-billed Murres. However, based on the counts of birds judged to be in incubation posture on the cliffs, as many as 196 murres may have been incubating eggs or brooding young in subcolonies 1, 2, 3 and 4. Site 5 contained only non-breeding birds. Although site 6 was not visible from the observation areas, the number of rock ledges available for birds in this area appeared to be severely limited. Site 7 was a small area of cliff between subcolonies 1 and 2 that was not visible from the observation posts.

Our estimates of the number of Thick-billed Murres present at the Cape Parry colony compared with those given earlier by others provide a useful index of the apparent status of the colony, provided that time of day, time of year, and sampling procedures are taken into account. Hohn (1955) visited Police Point on 13 August 1953 and recorded approximately 200 adult murres and one young. Barry (1961) reported 250 birds there in 1958, but only 125 were present on 27 July 1960; on 10 August 1964 he recorded 67 "nests" at the colony (Barry, 1968). A station supervisor at Cape Parry Distant Early Warning site reported that the murres apparently did not nest at the colony in the heavy-ice year of 1974 but that approximately 500 murres were present at the colony on 9 July 1975 (J. Thompson, pers. comm. 1975). D. Karasiuk (Canadian Wildlife Service, pers. comm. 1979) recorded 436 murres at the colony on 14 July 1978. All of these estimates were of birds present on or flushed from the cliffs or of birds swimming in the water near the colony. No systematic sampling procedures were followed at Police Point prior to the 1979 census. We counted over 700 murres at the colony on 2 August 1979. Another 100 birds may have been associated with the colony during the period of peak attendance, and as many as 196 eggs (or young) may have been present at the colony in 1979. Although differences in the timing and procedures used in these counts confuses their interpretation, the number of Thick-billed Murres occupying the colony at Police Point apparently has increased since the earliest estimates were published several decades ago (Table 2).

Two Common Murres (*U. aalge*) and 16 Black Guillemots

TABLE 1. A summary of the numbers of Thick-billed Murres counted at the Cape Parry colony, N.W.T., Canada, 1-2 August 1979

	Breeding Sites (Subcolonies)						Non-Breeding Sites				Total
	1	2	3	4	7	Subtotal/ Overall	5	6	Subtotal/ Overall	Birds at Sea	
mean	156.2	45.4	84.6	243.7	18	547.9	32.3	28	60.3	87.7	695.9
s.d.	31.1	5.1	14.6	26.7	—	18.2	3.8	—	—	29.8	—
Range											
max.	211	54	111	290	—	666	35	—	—	140	—
min.	112	35	57	217	—	421	28	—	—	29	—
n*	25	24	25	11	1	86	3	1	4	25	115

*Number of hourly counts.

TABLE 2. Numbers of Thick-billed Murres recorded at the Cape Parry colony, N.W.T., Canada 1953-1979

Date	Source	Maximum Number of Murres Recorded
13 August 1953	Höhn (1955)	200
1958	Barry (1961)	250
27 July 1960	Barry (1961)	125
10 August 1964	Barry (1968)	134*
9 July 1975	J. Thompson (pers. comm.)	500
14 July 1978	D. Karasiuk (pers. comm.)	436
2 August 1979	This study	784**

*Given by Barry (1968) as 67 'nests'.

**From count at 2000 - 2100 h.

(*Cephus grylle*) were sighted during the boat survey. The Common Murres were on the water below subcolony 3 and the Black Guillemots were located on the cliff at roosting site 6. The two Common Murres represent the first record of this species in the Beaufort Sea; this observation suggests that the murres occupying this colony are from the Pacific rather than the Atlantic basin. The Cape Lisburne murre colony on the Chukchi coast of Alaska (68°53'N; 166°15'W), about 1500 km west, supports about 50 000 Common Murres (30% of the murres breeding there; Murphy *et al.*, 1980) and is the closest known breeding location of this species. The closest Common Murre colony to the east is about 2000 km away on the coast of southwest Greenland (Salomonsen, 1967:267).

A total of 37 Black Guillemots was recorded in the study area: 16 at Police Point and 21 along the cliffs at Fiji Island, approximately 9 km west of Police Point. We were unable to obtain evidence of breeding by Black Guillemots at these locations in 1979. In 1978, D. Karasiuk (CWS, pers. comm. 1979) recorded 29 Black Guillemots in the Cape Parry area, 2 at Police Point, and 27 at Devon Point (3 km east of Police Point). Our survey did not include Devon Point. Barry *et al.* (1981) recorded one Black Guillemot nest among empty fuel drums near the DEW site at Cape Parry. Previously, the nearest known nesting area of Black Guillemots was at Herschel Island, Yukon Territory (Kuyt *et al.*, 1976), approximately 450 km west of Cape Parry.

Disturbances that resulted in some murres flying from the breeding cliffs were recorded on nine occasions during the 26

hours that we observed the colony at Police Point. We classified four of the nine disturbances as "natural" (one rockfall and three Glaucous Gull [*Larus hyperboreus*] attacks) and the remaining five as "caused by man" (one DC-3 overflight, one approach by a boat, three approaches by observers). Although we recorded no loss of eggs or chicks as a result of any of the observed disturbances, Glaucous Gulls nesting nearby probably prey on eggs and chicks of murres breeding at Police Point. Aircraft flying immediately seaward or over the colony and observers moving near the breeding cliffs also may cause mortality; these activities should be minimized to the greatest extent possible.

SUMMARY AND CONCLUSIONS

The seabird colony at Police Point, Parry Peninsula, N.W.T., consisted of three species of alcids in 1979 and apparently had increased in size considerably since the 1950s and 1960s. Although a small number of eggs was observed on the cliffs, murre production was not determined during 1979. Disturbances recorded at the breeding colony indicated that Glaucous Gulls, close-approaching aircraft, and observers moving near the cliffs would be the most likely causes of egg or chick mortality.

The colony at Police Point offers a unique opportunity to monitor the dynamics of a small and relatively isolated population of Thick-billed Murres. The decline and subsequent dramatic increase of murres breeding at colonies in the southern Baltic earlier in this century (Tuck, 1961:52) demonstrates the tenacity of these birds. The colony at Police Point has increased in size since the time it was counted by Höhn (1955) in 1953. With proper protection, this murre colony may continue to enlarge; on the other hand, long-term disturbances there could eliminate the colony. In either case, it is of interest and importance to understand the mechanisms that regulate the size of this unique population of Thick-billed Murres.

ACKNOWLEDGEMENTS

We appreciate the constructive criticisms and comments of D.N. Nettleship and A.J. Gaston, Canadian Wildlife Service.

W.J. Richardson, W.R. Koski, D.G. Roseneau and D.M. Troy, of LGL, also provided helpful comments on early drafts of this paper. LGL's work at Cape Parry in 1979 was supported by Dome Petroleum Ltd., Calgary, Alberta.

REFERENCES

- BARRY, T.W. 1961. Proposed migratory bird sanctuary at Cape Parry, Parry Peninsula, Amundsen Gulf, N.W.T. Canadian Wildlife Service unpub. rep. 3 p. mimeo. [Available from CWS, 9942 - 108 St., Edmonton, Alberta, Canada T5K 2J5.]
- . 1968. Observations on natural mortality and native use of eider ducks along the Beaufort Sea coast. Canadian Field-Naturalist 82:140-144.
- , BARRY, S.J., and JACOBSON, B. 1981. Seabird surveys in the Beaufort Sea, Amundsen Gulf, Prince of Wales Strait and Viscount Melville Sound — 1980 season. Canadian Wildlife Service unpub. rep. for Dome Petroleum Ltd. and Esso Resources Canada Ltd., Calgary, Alberta. 69 p. [Available from CWS, 9942 -108 St., Edmonton, Alberta, Canada T5K 2J5.]
- BIRKHEAD, T.R., and NETTLESHIP, D.N. 1980. Census techniques for murre, *Uria* spp.: a unified approach. Canadian Wildlife Service Occasional Paper No. 43. 25 p.
- BROWN, R.G.B., NETTLESHIP, D.N., GERMAIN, P., TULL, C.E., and DAVIS, T. 1975. Atlas of Eastern Canadian Seabirds. Ottawa: Canadian Wildlife Service. 220 p.
- GASTON, A.J., and NETTLESHIP, D.N. 1981. The Thick-billed Murres of Prince Leopold Island. Canadian Wildlife Service Monograph Series No. 6. 350 p.
- HÖHN, E.O. 1955. Birds and mammals observed on a cruise in Amundsen Gulf, N.W.T., July 29—August 16, 1953. Canadian Field-Naturalist 69:41-44.
- JOHNSON, S.R., ADAMS, W.J., and MORRELL, M.R. 1975. The Birds of the Beaufort Sea. Victoria, B.C.: Canada Department of Environment. 310 p.
- KUYT, E., JOHNSON, B.E., TAYLOR, P.S., and BARRY, T.W. 1976. Black Guillemots' breeding range extended into the western Canadian Arctic. Canadian Field-Naturalist 90:75-76.
- MURPHY, E.C., SPRINGER, M.I., ROSENEAU, D.G., and SPRINGER, A.M. 1980. Monitoring population numbers and productivity of colonial nesting seabirds. In: Environmental Assessment of the Alaskan Continental Shelf. Annual Report of Principal Investigators. March 1980. Vol. 1: 142-272. NOAA/BLM, OCSEAP. Boulder, Colorado.
- SALOMONSEN, F. 1967. Fuglene pa Gronland. Copenhagen: Rhodes. 342 p.
- SMITH, M., and RIGBY, B. 1981. Distribution of polynyas in the Canadian Arctic. In: Stirling, I., and Cleator, H., eds. Polynyas in the Canadian Arctic. Canadian Wildlife Service Occasional Paper No. 45. 73 p.
- SOWLS, A.L., HATCH, S.A., and LENSINK, C.J. 1978. Catalog of Alaskan seabird colonies. U.S. Department of Interior. Fish and Wildlife Service. FWS/OBS-78/7. 251 p.
- STIRLING, I., and CLEATOR, H., eds. 1981. Polynyas in the Canadian Arctic. Canadian Wildlife Service Occasional Paper No. 45. 73 p.
- TUCK, L.M. 1961. The Murres. Canadian Wildlife Service Monograph Series No. 1. 260 p.
- WARD, J.G. 1979. Bird and mammal surveys in the Cape Parry area, Northwest Territories, June-August 1979. LGL Ltd. unpub. rep. for Dome Petroleum Ltd., Calgary, Alberta. 40 p. [Available from Dome Petroleum Ltd., P.O. Box 200, Calgary, Alberta, Canada T2P 2H8.]