Ornis Fennica 74: 187–194. 1997

Diet of moulting King Eiders *Somateria spectabilis* at Disko Island, West Greenland

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Received 23 May 1997, accepted 14 October 1997

During the autumns of 1990–1992, 109 moulting King Eiders *Somateria spectabilis* were collected at Disko Island, West Greenland, for analysis of stomach contents. All collected birds had food in their stomachs. The mean number of prey items per stomach was 11.1. Moulting King Eiders had a varied diet (minimum 41 prey species), with mollusks comprising the bulk of the food. Bivalves of 21–40 mm length occurred more frequently in the stomachs than did other size categories of bivalves. There was no marked difference in food composition between sex and age classes of eiders, and the diet varied only slightly between the study years. Female eiders depend strongly on a high prey density owing to their late arrival in the area and shorter day lengths.

1. Introduction

Large numbers of King Eiders *Somateria spectabilis* representing the Central and East Canadian Arctic populations undergo prebasic moult in central West Greenland in autumn, with peak concentrations in the Disko Bay region (Salomonsen 1968, Abraham & Finney 1986). Post-breeding males arrive mainly in early August, females about two weeks later (Salomonsen 1968, Frimer 1994a). The autumn population of King Eiders at Disko Island has recently been estimated at 15 000 to 20 000 individuals (Frimer 1993). The King Eider moults mainly in the fjords and bays, where it is the most numerous waterfowl in the autumn. The prebasic moult of King Eiders involves about three weeks of flightlessness (Salomonsen 1990). During this time they are vulnerable to predation and require energy for feather growth. Thus, the moulting area must provide protection and sufficient food supplies.

No detailed studies of the feeding habits of moulting King Eiders have previously been carried out. Investigations of their food in the wintering and breeding areas indicate that the King Eider may show great seasonal variations in diet (Cottam 1939, Dement'ev & Gladkov 1967, Palmer 1976, Bustnes & Erikstad 1988, Goudie & Ryan 1991). This paper is part of a comprehensive study of the moult ecology of King Eiders at Disko Island (Frimer 1993, 1994a, b, 1995). I examine the food composition and size of prey caught by King Eiders moulting at Disko Island, the food overlap between different sex and age classes of eiders, and the year-to-year variations in their diet. The results are discussed in relation to the feeding behaviour and feeding habitat of eiders (Frimer 1994b, 1995).

2. Methods

During mid-August to early October, 1990–1992, 109 King Eiders (69 males and 40 females) were collected at western Disko Island (70°N, 55°W); 51 in 1990, 30 in 1991 and 28 in 1992. The birds were shot from a research vessel or rubber dinghy and brought to the Arctic Station at Qeqertarsuaq, Disko, shortly after death. Morphometrics were taken using an electronic balance (± 1.0 g) and a vernier caliper (± 1.0 mm), and included body weight and the length of the flattened 6th primary of the left or right wing. The birds were assigned to age classes, if possible, according to Schiøler (1926) and Frimer (1994a). The whole birds (or their oesophagus, proventriculus and gizzard, together called stomach in the following) were then frozen for later analysis.

Most food items in the stomachs were fragmented. The food items were identified to the lowest taxon possible, and the length of whole items measured to the nearest 1.0 mm. Shell fragments of mollusks were compared with a collection of mollusks from West Greenland at the Zoological Museum of Copenhagen, and identified to species. The size of fragmented bivalves was estimated, if possible, from the size of the umbo and teeth and from the thickness and sculpturing of the shell. Remnants of polychaetes *Pectinaria* spp. consisted mainly of paleae and grains. In each stomach, the number of *Pectinaria* specimens was estimated from the number of paleae (1–20 paleae = 1 specimen, 21–40 paleae = 2 specimens, etc.) (Sæmundsson 1918, Grainger 1954). Fish otoliths were identified according to Härkönen (1986), assuming that two otoliths represent one specimen. The relative importance of the prey species is given in terms of frequency of occurrence and presented as the number of stomachs containing a taxon as a percentage of the total number of stomachs. Frequency "by number" was found useful only for assessment of the relative importance of various size categories of bivalves, that is, the number of bivalves in a size category as a percentage of the total number of bivalves found in the stomachs. For information on benthos communities and microhabitats at Disko Island see Curtis (1977), Petersen (1978) and Schmid and Piepenburg (1993). The term "hard bottom" refers to rocky, boulder and stony sediments, and "soft bottom" to gravel and finer grained sediment.

The computer statistical package Execustat (Loll 1993) was used for the statistical analysis. Differences in frequencies of prey species and sizes were analyzed using chi-square statistics (with Yates' correction for continuity in case of one degree of freedom) and Fisher's exact test, and differences in means using one-way analysis of variance (ANOVA) (Sokal & Rohlf 1981, Everitt 1992, Fry 1993). When data did not meet the assumptions of the ANOVA, they were log transformed (Sokal & Rohlf 1981).

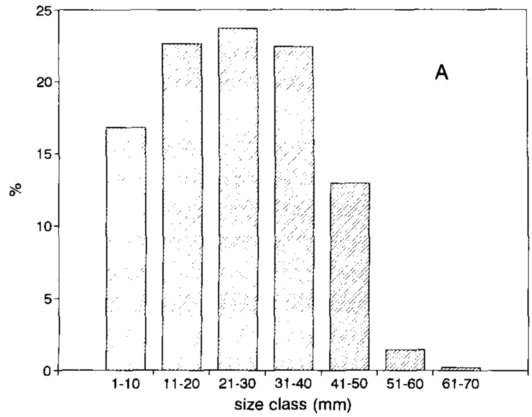
3. Results

Of the 109 collected birds, 96 (68 males and 28 females) could be aged according to the categories: adult (68), immature (26) and juvenile (2). All birds were in prebasic body moult or basic plumage. Sixty-three (91%) males and 33 (83%) females were in wing moult. The body weights of those measured are given in Table 1.

A total of 1 672 food items of 41 species (excluding algae) were identified (App. 1). Bivalves were found in all stomachs. The dominant prey species, by frequency of occurrence, were bivalves *Mya truncata* and *Serripes groenlandicus*. Other important bivalves were *Mytilus edulis*, *Cardium ciliatum* and *Hiatella byssifera*. As a group, these five bivalves occurred in 94.5% of the stomachs. Polychaetes *Pectinaria* spp. and gastropods *Oenopota* spp. also occurred frequently in the stomachs. Small fragments of algae were found in several stomachs, and three birds had considerable amounts of algae in their stomachs (1.2 g, 0.5 g and 0.3 g). The mean number of species per stomach (excluding algae) was 4.5 (± 2.6 S.D.), and the mean number of items per stomach was 15.3 (± 45.9 S.D.). One stomach contained a considerable amount of a single prey species (458 *Pontogeneia inermis*). Excluding these items, the mean number of items per stomach was reduced to 11.1 (± 13.7 S.D.). The frequency of occurrence of the

Table 1. Body weight (mean ± S.D.) of King Eiders collected at Disko Island in the autumns of 1990–1992. n = number of birds.

Sex and age	Weight (g)	n
Males		
Adults	1 763 ± 123	46
Immatures	1 650 ± 122	17
Juveniles	1 307 ± 349	2
Females		
Adults	1 586 ± 142	20
Immatures	1 535 ± 110	7



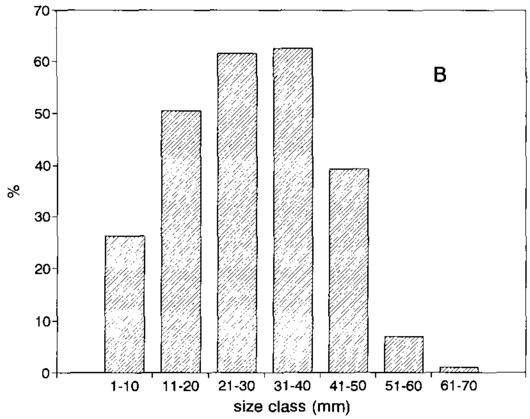


Fig. 1. Frequency (%) by number (A) and by occurrence (B) of various size categories of bivalves (n = 549) taken by King Eiders (excluding juveniles) in the autumns of 1990–1992.

prey species did not differ significantly between adults and immatures and between males and females (Table 2).

A total of 575 (91%) bivalves were classified according to size. The size categories where number predominated were within the 11–40 mm range and were taken in almost equal amounts (Fig. 1A), while the categories where frequency of occurrence predominated were within 21–40 mm (Fig. 1B). No marked difference was found in the size distribution of bivalves in the stomachs between adult and immature males ($\chi^2 = 0.70$, df = 4, $P > 0.9$, n = 356), between adult and immature females ($\chi^2 = 3.41$, df = 4, $P > 0.4$, n = 139) and between the sexes ($\chi^2 = 6.36$, df = 4, $P > 0.1$, n = 549); items > 40 mm were pooled. However, eight of nine bivalves larger than 50 mm were taken by males, indicating that males — having a larger bill than females (Schiøler 1926) — may be capable of eating larger prey than females.

The mean autumn body weight of King Eiders did not vary markedly over the study years (adult males: F = 2.4, df = 45, $P > 0.1$; immature males: F = 0.11, df = 16, $P > 0.1$; adult females: F = 1.38, df = 19, $P > 0.2$). Year-to-year variations in the frequency of occurrence of prey spe-

Table 2. Frequency of occurrence (%) of various taxa in the stomachs of King Eiders in the autumns of 1990–1992. Data are shown for aged birds and for all collected birds (excluding juveniles). Differences between the age and sex classes in the frequency of the various taxa were not significant. Chi-square: $P > 0.1$ for all; differences between adult and immature females were tested using Fisher's exact test (P values are given).

Taxon	Males			Females			Total		
	Adults	Immatures		Adults	Immatures		Males	Females	
	n = 47	n = 19	χ^2	n = 21	n = 7	P	n = 67	n = 40	χ^2
Oenopota spp.	27.7	15.8	0.49	28.6	0.0	0.29	23.9	22.5	0.00
Other gastropods	31.9	47.4	0.81	47.6	14.3	0.19	35.8	35.0	0.00
Mytilus edulis	27.7	31.6	0.00	19.0	14.3	1.00	28.4	27.5	0.00
Serripes groenlandicus	55.3	52.6	0.00	47.6	57.1	1.00	53.7	37.5	2.03
Cardium ciliatum	25.5	21.1	0.00	23.8	0.0	0.29	23.9	22.5	0.00
Hiatella byssifera	23.4	21.1	0.00	28.6	28.6	1.00	22.4	22.5	0.00
Mya truncata	59.6	84.2	2.67	85.7	57.1	0.14	65.7	70.0	0.06
Other bivalves	51.1	57.9	0.05	52.4	42.9	1.00	53.7	57.5	0.03
Pectinaria spp.	51.1	47.4	0.00	52.4	14.3	0.18	50.7	42.5	0.39
Crustaceans	25.5	42.1	1.06	28.6	0.0	0.29	29.9	17.5	1.42
Other species (incl. eggs)	29.8	31.6	0.17	33.3	28.6	1.00	29.9	22.5	0.36

cies or groups in the eider stomachs (excluding juveniles) were significant in a pooled group of gastropods other than *Oenopota* spp. (1990: 21.6%; 1991: 48.3%; 1992: 44.4%; $\chi^2 = 7.38$, df = 2, $P < 0.05$). This group occurred in significantly fewer stomachs in 1990 than in the following years combined ($\chi^2 = 7.29$, df = 1, $P < 0.01$). The bivalve *Mya truncata* was predominate in all years and its frequency of occurrence increased over the study period (1990: 56.9%; 1991: 65.5%; 1992: 88.9%, $\chi^2 = 8.28$, df = 2, $P < 0.05$), with its frequency being significantly higher in 1992 than in the previous years combined ($\chi^2 = 7.66$, df = 1, $P < 0.01$). No other year-to-year differences in the frequency of prey were significant. The mean number of bivalves per stomach did not appear to vary markedly between study years (1990: 5.5 ± 7.0 S.D.; 1991: 6.0 ± 6.4 S.D.; 1992: 6.3 ± 4.4 S.D.; F = 1.72, df = 104, $P > 0.1$), but the high variation of number of bivalves per stomach may mask significance.

4. Discussion

4.1. Sampling problems

Moulting King Eiders react quickly to disturbance and cease feeding even when the sound of an engine is quite distant (Frimer 1994b). Hence, when the birds were in sight, they were usually wary of the sound of our vessel, and we therefore failed to observe their behaviour before they were disturbed. However, the great majority of the birds were shot within their major feeding areas by western Disko Island (see Frimer 1993) in the early morning or late afternoon when the feeding intensity of King Eiders peaks (Frimer 1994b).

Differential digestibility of various taxa may bias the assessment of dietary importance (Bengtson 1971, Nilsson 1972). Hard-bodied taxa may thus be over-represented in the present study. It seems unlikely, however, that one hard-bodied taxon is effectively digested before another, although the digestibility may vary with shell thickness.

4.2. Prey selection

All collected birds had food in their stomachs, with most stomachs containing several items (mean 5.7 bivalves and 5.4 other taxa). The species diversity of the food items supports the general assumption that the King Eider has a varied diet (Cramp & Simmons 1977, Bustnes & Erikstad 1988), a factor which may be related to its tendency to stay in fairly deep water (see Frimer 1995). The predominant prey species are among the most common benthic species in the sublittoral zone of Disko Island (Curtis 1977, Petersen 1978, Schmid & Piepenburg 1993). Surprisingly few polychaete species were found in the stomachs, given their abundance and diversity by Disko Island (Curtis 1977, Schmid & Piepenburg 1993). A low proportion of polychaete species was also found in the King Eider's winter diet in Norway (Bustnes & Erikstad 1988). Algae is assumed to be taken incidentally, in most cases, with other prey species. A few birds had comparatively large amounts of algae in their stomachs, suggesting that they have actively been feeding on algae (see Goudie & Ryan 1991).

The distribution of bivalves in the stomachs, based on size, may reflect the availability of bivalves. However, the frequency of bivalves in range of 1–20 mm appears to be relatively higher when classified by number (Fig. 1A) than by occurrence (Fig. 1B). The birds may, thus, have taken the smaller bivalves mainly when these occurred in high densities (clusters).

The diet of King Eiders varies, to a high degree, according to the availability of different prey species. Off Novaya Zemlya, in August, flocks of males fed in the upper layers of water, presumably on swarming pteropods and planktonic molluscs *Limacina* sp. (Dement'ev & Gladkov 1967). In Alaska, wintering King Eiders fed mainly on mollusks (primarily *Mytilus edulis* and *Musculus* spp.), but also on echinoderms, crustaceans and insects (Cottam 1939). In northern Norway, in spring, echinoderms comprised the bulk of the diet (Bustnes & Erikstad 1988).

4.3. Intraspecific food overlap

The different sex and age classes consumed much the same prey species and size of prey. Considering that foraging flocks of moulting King Eiders usually contain both sexes (pers. observations), and assuming that habitat segregation is reflected in the food, it is obvious that the food niches overlap greatly between different sex and age groups of moulting King Eiders, as was found with wintering King Eiders in northern Norway (Bustnes & Erikstad 1988).

4.4. Feeding habitat

The low frequency of occurrence of pelagic prey species in the stomachs corroborates that King Eiders at Disko Island feed primarily on benthos (Frimer 1994b). Even the fish *Ammodytes* spp. may have been taken on the bottom, while it was buried in the sediment (see Nielsen & Bertelsen 1992). The prey list suggests that the King Eiders exploited soft bottom as well as hard bottom benthos. The important bivalves *Mya truncata*, *Serripes groenlandicus* and *Cardium cilliatum* are typically buried in the upper part of the bottom layer, while *Hiatella byssifera* and *Mytilus edulis* may be anchored in crevices and to rocks, respectively (Petersen 1978). The frequency of occurrence of these bivalves in the eider stomachs is in good accordance with observations on habitat use in a study area at western Disko Island, where King Eiders spent about 78% of the foraging time over soft bottoms, and about 22% over hard bottoms (Frimer 1995).

The mean body weights of the collected birds are typical of King Eiders in autumn (Thompson & Person 1963, Dement'ev & Gladkov 1967), and there was no marked difference in the mean body weights between study years. A good correlation between body weight and body fat has been shown in the Common Eider (Guillemette et al. 1992). If this is also the case for King Eiders, the condition of the birds did not differ markedly between the study years. Moreover, the slight year-to-year variations in the frequency of prey in the eider stomachs may indicate that the sublittoral benthic community of western Disko Island was rather stable over the study years, at least in terms of relative abundance. According to Schmid and Piepenburg (1993), several benthic species are able to survive the severe winter in this habitat, even at littoral sites where they may be temporarily frozen.

King Eiders are daytime feeders, who spend most of the night resting. Hence, the daytime feeding intensity is negatively correlated with day length (Frimer 1994b). In other words, the food availability is limited, to some extent, by day length, and a high prey density becomes increasingly important for the birds as days become shorter. For example, the females arrive in the area later than the males and their period of wing moult reaches well into October (Frimer 1994a). The females, therefore, depend strongly on a high density of prey, and the regular occurrence in October of considerable numbers of moulting King Eiders at Disko Island (Frimer 1994a) is likely an indication of a continuously high prey density. In November, the birds are forced out of the fjords of western Disko Island by newly formed ice (Frimer 1994b), probably before the carrying capacity of these areas for King Eiders has been reached.

Acknowledgements. I thank the crew of the Arctic Station's research vessel "Porsild", and T. K. Kristensen, E. Gravesen, H.-E. Jensen and E. Knudsen for help in collecting the birds. D. Eibye-Jacobsen, R. M. Kristensen, J. Lützen, S. Pagh, G. H. Petersen, T. Schiøtte and E. Steffensen are thanked for help with the identification of the material, and J. Fjeldså, R. I. Goudie, R. M. Kristensen and two anonymous referees for criticism of the manuscript. The study was supported financially by the Commission for Scientific Research in Greenland (grant No. 5.111/23 0.234-91) and the Danish Natural Science Research Council (grant No. 11-8974).

Selostus: **Sulkivien kyhmyhaahkojen ravinto Diskon saarella Länsi-Grönlannissa**

Kirjoittaja keräsi vuosien 1990–1992 syksyllä mahanäytteitä 109 sulkivalta kyhmyhaahkalta. Aineistossa tavattiin yhteensä 1 672 ravintopartikkelia 41 lajista. Kaikissa tutkituissa mahoissa oli ravintoa, keskimäärin 11 ravintopartikkelia. Kyhmyhaahkojen ravinto tutkimusalueella oli hyvin monipuolinen. Erilaiset nilviäiset muodostivat suurimmat ravintokohderyhmän (Taulukko 2 ja Appendix). Simpukoista, joita löydettiin kaikista tutkituista mahoista, suosituimpia näyttivät olevat 20–40 mm pitkät yksilöt (Kuva 1). Ikäluokkien ja sukupuolten välillä ei ollut suuria eroja ravinnon koostumuksessa. Myöskään eri vuosien välillä ei havaittu merkittävää vaihtelua ravinnossa. Naaraat, jotka saapuivat sulkimisalueelle myöhemmin ja sulkivat myöhemmin kuin koiraat lyhyemmän päivänpituuden aikaan, olivat todennäköisesti koiraita enemmän riippuvaisia alueen rikkaista ravintovaroista ja parhaista ruokailualueista.

References

Abraham, K. F. & Finney, G. H. 1986: Eiders of the eastern Canadian Arctic. — In: Reed, A. (ed.), Eider Ducks in Canada: 55–77. Canadian Wildlife Service Report Series No. 47.

Bengtson, S.-A. 1971: Food and feeding of diving ducks breeding at Lake Myvatn, Iceland. — Ornis Fennica 48: 77–92.

Bustnes, J. O. & Erikstad, K. E. 1988: The diet of sympatric wintering populations of Common Eider Somateria mollissima and King Eider S. spectabilis in Northern Norway. — Ornis Fennica 65: 163–168.

Cottam, C. 1939: Food habits of North American diving ducks. — Technical Bulletin Number 643, U. S. Department of Agriculture, Washington, D. C.

Cramp, S. & Simmons, K. E. L. (eds.) 1977: Handbook of the birds of Europe, the Middle East, and North Africa: The birds of the Western Palearctic. Vol. 1. — Oxford University Press, Oxford & New York.

Curtis, M. A. 1977: Life cycles and population characteristics of marine benthic polychaetes from Godhavn, West Greenland. — Ophelia 16: 9–58.

Dement'ev, G. P. & Gladkov, N. A. (eds.) 1967: Birds of the Soviet Union. Vol. 4. — Israel Program for Scientific Translations, Jerusalem.

Everitt, B. S. 1992: The analysis of contingency tables. 2nd ed. — Chapman and Hall, London.

Frimer, O. 1993: Occurrence and distribution of king eiders Somateria spectabilis and common eiders S. mollissima at Disko, West Greenland. — Polar Research 12: 111–116.

Frimer, O. 1994a: Autumn arrival and moult in King Eiders, (Somateria spectabilis) at Disko, West Greenland. — Arctic 47: 137–141.

Frimer, O. 1994b: The behaviour of moulting King Eiders Somateria spectabilis. — Wildfowl 45: 176–187.

Frimer, O. 1995: Comparative behaviour of sympatric moulting populations of Common Eider Somateria mollissima and King Eider S. spectabilis in central West Greenland. — Wildfowl 46: 129–139.

Fry, J. C. (ed.) 1993: Biological data analysis: A practical approach. — Oxford University Press, New York.

Goudie, R. I. & Ryan, P. C. 1991: Diets and morphology of digestive organs of five species of seaducks wintering in Newfoundland. — Journal of the Yamashina Institute for Ornithology 22: 1–8.

Grainger, E. H. 1954: Polychaetous annelids of Ungava Bay, Hudson Strait, Frobisher Bay and Cumberland Sound. — J. Fish. Res. Bd. Canada 11: 507–528.

Guillemette, M., Ydenberg, R. C. & Himmelman, J. H. 1992: The role of energy intake rate in prey and habitat selection of common eiders Somateria mollissima in winter: a risk-sensitive interpretation. — Journal of Animal Ecology 61: 599–610.

Härkönen, T. 1986: Guide to the otoliths of the bony fishes of the Northeast Atlantic. — Danbiu Aps., Hellerup.

Loll, S. (ed.) 1993: Execustat 3.0. — Duxbury Press, Belmont, California.

Nielsen, J. G. & Bertelsen, E. 1992: Fisk i grønlandske farvande. — Atuakkiorfik, Nuuk.

Nilsson, L. 1972: Habitat selection, food choice, and feeding habits of diving ducks in coastal waters of South Sweden during the non-breeding season. — Ornis Scandinavica 3: 55–78.

Palmer, R. S. (ed.) 1976: Handbook of North American birds. Vol. 3. — Yale University Press, New Haven & London.

Petersen, G. H. 1978: Life cycles and population dynamics of marine benthic bivalves from the Disko Bugt area of West Greenland. — Ophelia 17: 95–120.

Sæmundsson, B. 1918: Bidrag til kundskaben om Islands polychæte børsteorme (Annulata polychæta Islandiæ). — Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening 69.

Salomonsen, F. 1968: The moult migration. — Wildfowl 19: 5–24.

Salomonsen, F. (ed.) 1990: Grønlands fauna. 2nd ed. — Gyldendal, København.

Schiøler, E. L. 1926: Danmarks fugle med henblik paa de i Grønland, paa Færøerne og i kongeriget Island forekommende arter. Vol. 2. — Gyldendalske Boghandel, København.

Schmid, M. K. & Piepenburg, D. 1993: The benthos zonation of the Disko Fjord, West Greenland. — Meddr Grønland, Bioscience 37.

Sokal, R. R. & Rohlf, F. J. 1981: Biometry, 2nd ed. — W. H. Freeman and Company, New York.

Thompson, D. Q. & Person, R. A. 1963: The eider pass at point Barrow, Alaska. — Journal of Wildlife Management 27: 348–356.

Appendix 1. Autumn food of King Eiders at Disko Island, West Greenland, 1990–1992.

Taxon	No.	% of stomachs
Hydrozoa		
Dynamena sp. (?)	1	0.9
Anthozoa		
Edwardsia sp.	5	0.9
Polychaeta		
Pectinaria granulata/P. hyperborea	161	47.7
Gastropoda		
Tonicella rubra	6	5.5
Margarites costalis	5	0.9
Margarites groenlandicus	5	1.8
Margarites helicinus	5	2.8
Littorina obtusata	1	0.9
Tachyrhynchus reticulatus	1	0.9
Euspira pallida	2	0.9
Natica spp.	2	0.9
Boreotrophon truncatus	2	0.9
Colus kroeyeri	7	1.8
Buccinum spp.	12	8.3
Volutomitra groenlandica	1	0.9
Oenopota spp.	43	24.8
Unidentified	23	18.4
Eggs (unidentified)	125	17.4
Total (excluding eggs)	115	49.5
Bivalvia		
Nucula tenuis	33	16.5
Nuculana pernula	13	7.3
Nuculana minuta	20	13.8
Musculus faba	6	4.6
Musculus discors	1	0.9
Musculus niger	13	10.1
Musculus spp.	6	5.5
Mytilus edulis	58	27.5
Chlamys islandicus	4	3.7
Astarte montagui	13	6.4
Serripes groenlandicus	63	47.7
Cardium ciliatum	42	23.9
Macoma calcarea/M. balthica	29	9.2
Hiatella byssifera	34	22.9
Mya truncata	289	67.0
Thracia myopsis	1	0.9
Unidentified	8	7.3
Total	633	100.0
Crustacea		
Balanus balanoides/B. crenatus	21	17.4
Caprella septentrionalis	1	0.9
Parathemisto libellula	30	2.8
Pontogeneia inermis	458	0.9
Gammarellus homari	4	1.8
Calliopius laeviusculus	5	0.9
Hyperiidea/Gammaridea spp.	5	3.7
Hyas araneus/H. coarctatus	5	4.6
Total	529	25.7

Continues ...

Appendix 1. Continued.

Taxon	No.	% of stomachs
Echinoidea		
Strongylocentrotus droebachiensis	7	6.4
Ascidiacea		
Pelonaia corrugata	4	1.8
Molgulidae sp.	1	0.9
Pisces		
Ammodytes dubius/A. marinus	14	0.9
Eggs (unidentified)	77	2.8
Algae	–	28.4
Total	1 672 (minimum 41 species)	