

MITIQ

The Ecology,
Use and Management of
the Common Eider in Northern Quebec



KUUJJUAQ RESEARCH CENTRE

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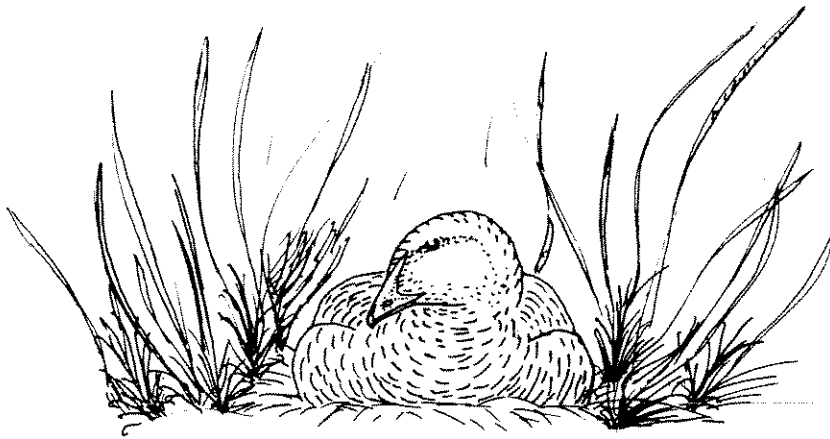
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THE ECOLOGY, USE AND MANAGEMENT OF THE COMMON EIDER IN NORTHERN QUEBEC



KUUJJUAQ RESEARCH CENTRE



by D. Nakashima

ACKNOWLEDGEMENTS

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Too numerous to mention here, but of invaluable assistance, the hunters from the northern Quebec communities provided ideas, comments and encouragement. Special thanks to the people of Kangirsuk who have shared with us their experience, knowledge and concerns about eiders.

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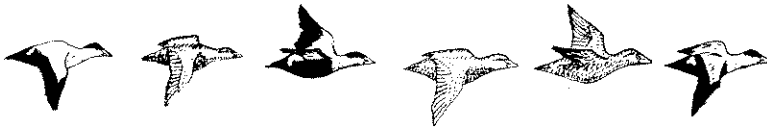
WILDLIFE MANAGEMENT IN NORTHERN QUEBEC

The wildlife resources of northern Quebec are of great value to the Inuit. They provide us with a wealth of food and materials which have no satisfactory substitute from the south. In this region we are the primary users of these resources, and it is important that we take care of them.

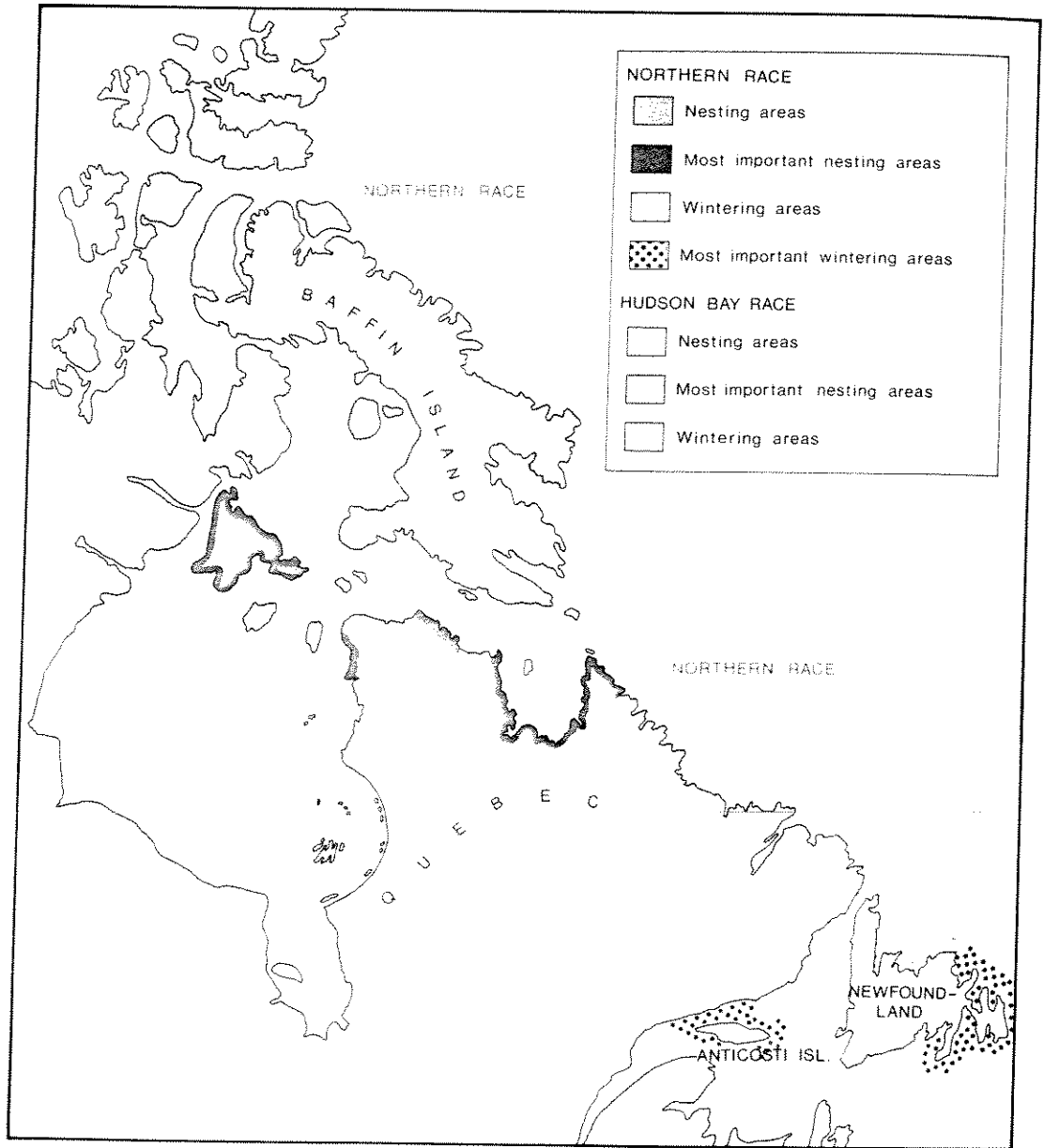
Taking care of a wildlife resource is called *wildlife management*. Management includes two important parts. The first part is the *conservation* of the resource. By conservation, we mean that we maintain a wildlife population in a healthy state. The second part is the *use* of the resource. Through management we plan our use of a resource so that it can meet the needs of present and future generations of people.

Therefore the goal of *wildlife management* is to provide people with the most benefit from resource use, while making sure that we do not endanger its long-term survival.

This booklet provides information which will be useful in planning the management of the Common Eider.



DISTRIBUTION OF THE COMMON EIDER IN EASTERN CANADA

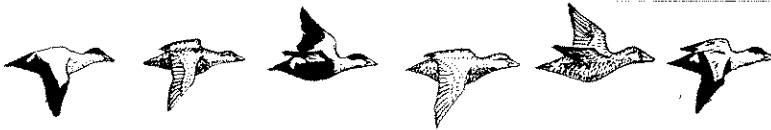


TWO TYPES OF COMMON EIDER IN NORTHERN QUEBEC

There are many different types of Common Eider found throughout the northern part of the world. Two of these types occur in northern Quebec. The *Hudson Bay type* nests on the islands of Hudson Bay (see map on the opposite page). The other type nests along Hudson Strait and Ungava Bay and north into the Northwest Territories. This is the *Northern type*.

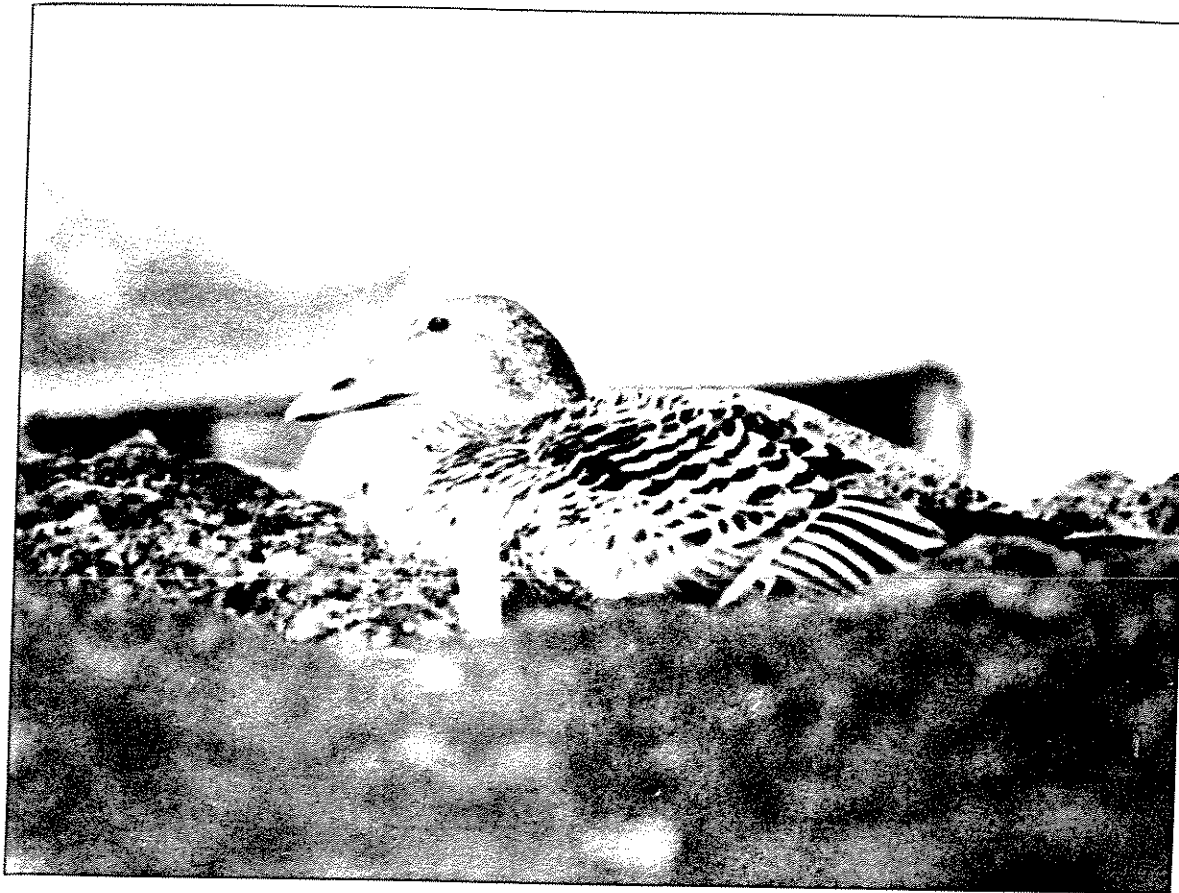
These two types of Common Eider do not often breed with each other. The Hudson Bay type spends the whole year, summer and winter, in Hudson Bay. The Northern type migrates south in the fall, and except for a few individuals that remain in the north, almost all members of this type spend the winter off the east coast of Newfoundland and near Anticosti Island in the St. Lawrence Gulf.

For the purposes of wildlife management, we can consider the Hudson Bay and Northern types of eider as separate populations.



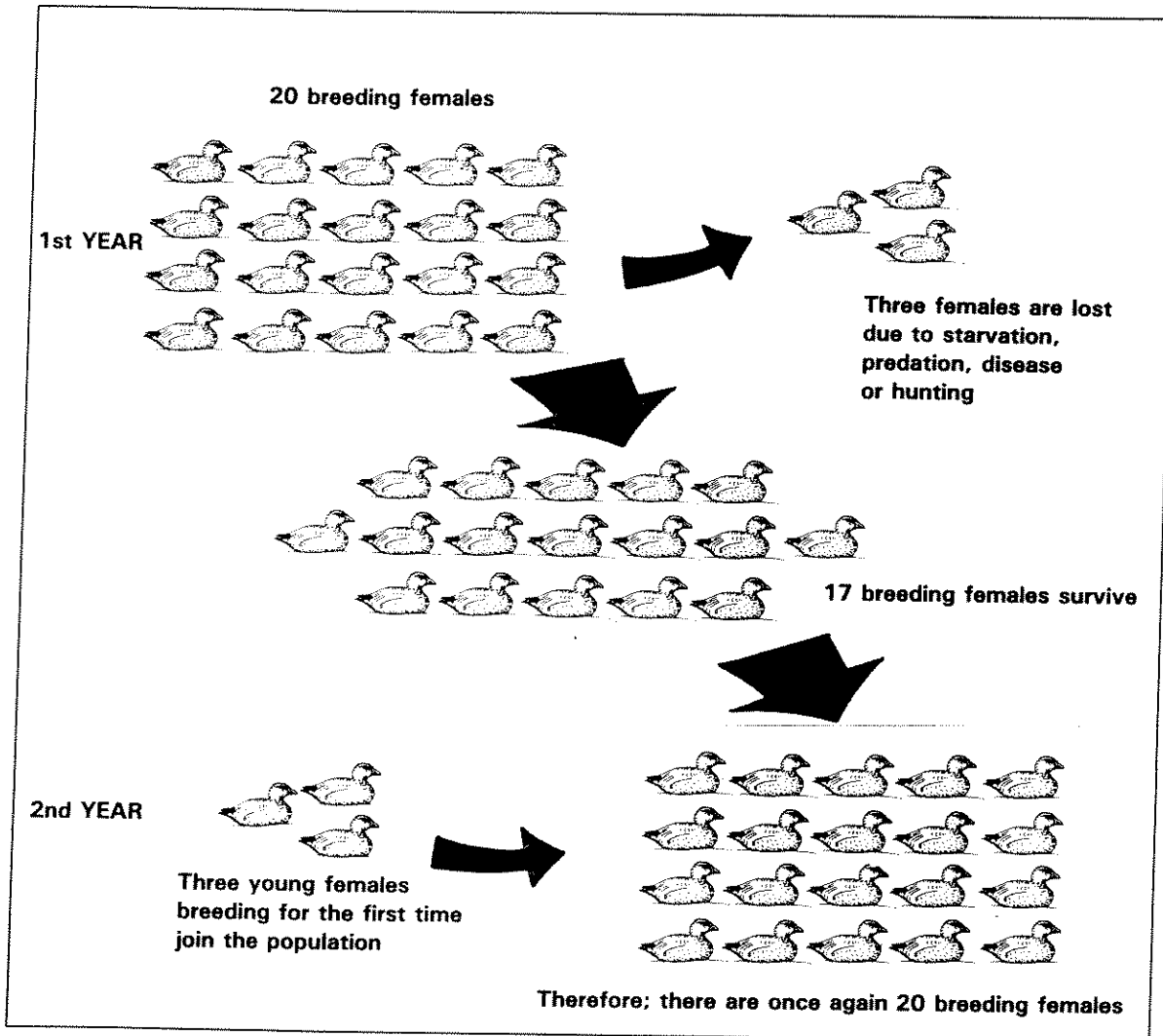
MANAGING THE NUMBERS OF ANIMALS IN A POPULATION

In wildlife management, one of the most important facts to know is the number of breeding females in a population. This piece of information tells us about the ability of a population to grow. Every year some breeding females are lost from a population as a result of sickness, hunting, predation or starvation. And every year some young females reach breeding age, and join the breeding population. This balance between the number of breeding females that are lost and the number of new breeding females that join the population, determines whether or not population size will increase, decrease or remain the same.



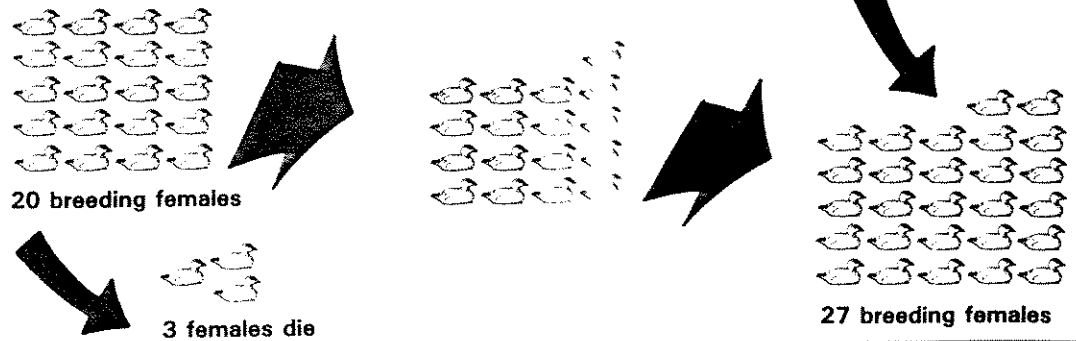
A STABLE POPULATION

In a stable population, overall population numbers remain the same. The number of young females breeding for the first time, balances with the number of older females that are lost. An example of this situation is shown in the picture.



AN INCREASING POPULATION

In an increasing population the number of young females added to the breeding group is more than the number of older breeding females that die. As a result, the size of the breeding population increases from year to year.

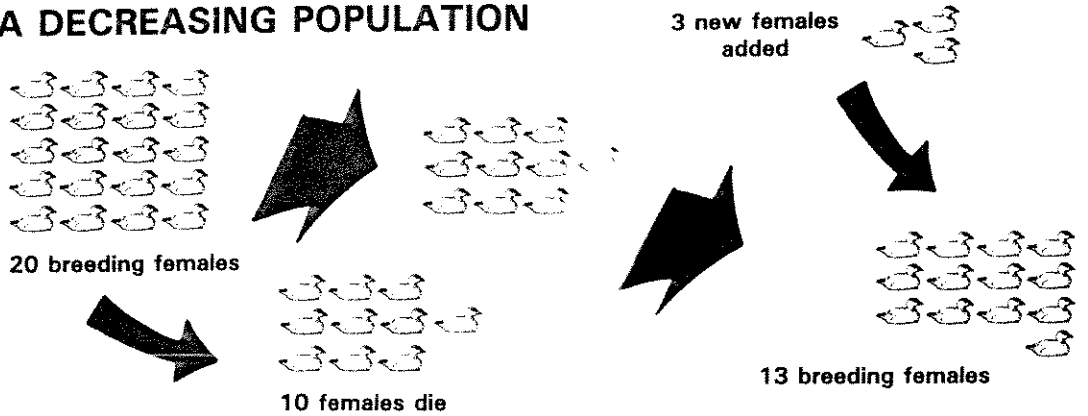


First Year

Second Year

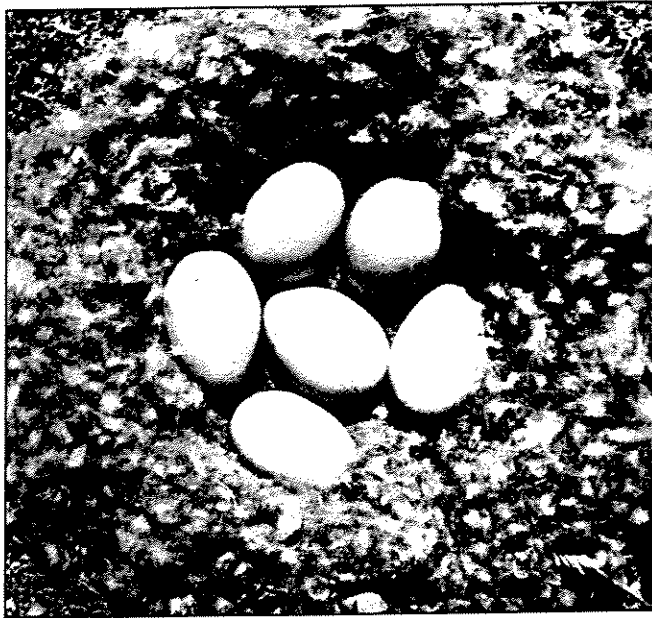
A DECREASING POPULATION

When a population cannot produce enough young females to replace the older breeding females that die, then it is declining. Population numbers will decrease from year to year, and if this continues the population will die out.



NORTHERN QUEBEC EIDERS: INCREASING, DECREASING OR STABLE?

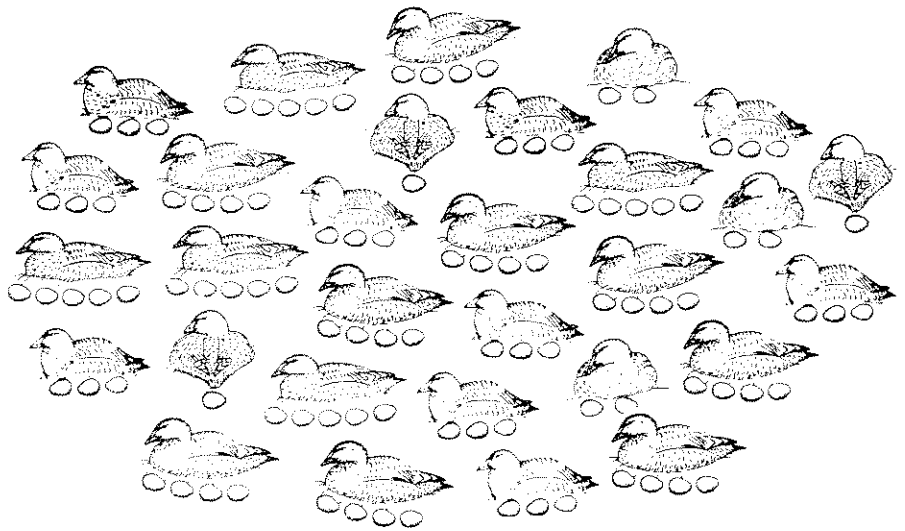
Information on the northern Quebec eider population is not complete. Throughout northern Quebec, hunters report local declines, especially near the communities and along major canoe routes. In Ungava, overall numbers appear to be stable. Census work is needed before we can determine the status of the eiders in Hudson Bay and Hudson Strait.



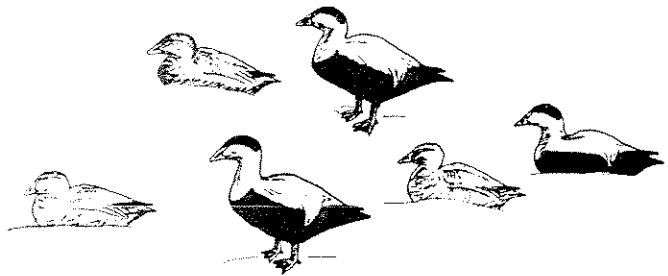
by M. Koneak

HOW MANY EIDERS ARE BEING ADDED EACH YEAR?

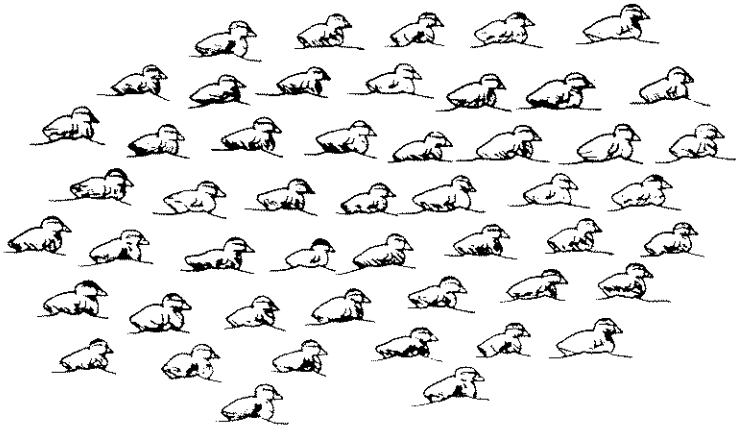
From studies at Virgin Lake, near Kangirsuk, we are beginning to get a more accurate idea of how many young breeding females are added to the eider population each year. These results and information from southern Canada were used to produce the diagram on the next page.



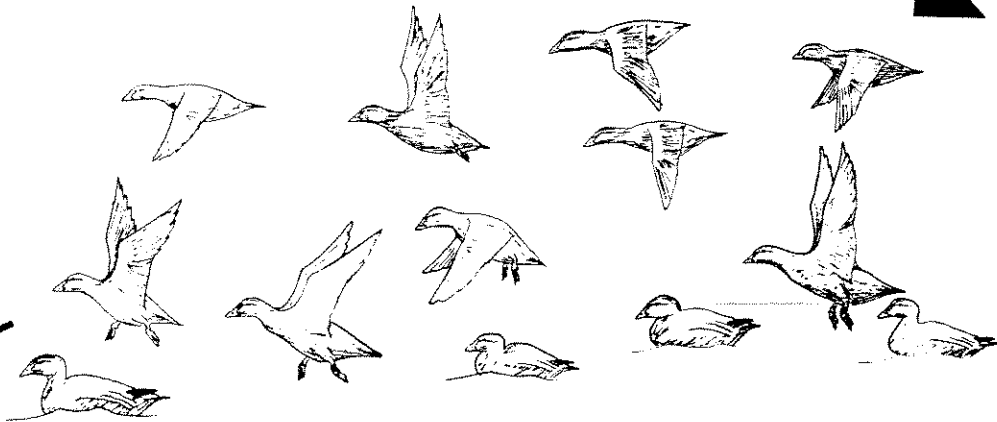
30 females will lay about 100 eggs



Since most eiders do not breed until they are 3 years old, only 6 of the 13 fledglings will survive to breed. Of these 6 birds about half will be females. So only 3 breeding females will be produced from every 100 eggs.



About 50 ducklings will hatch from these 100 eggs



Out of the 50 ducklings only 13 will survive to migrate south for their first winter.

A SLOW GROWING POPULATION NEEDS ADULTS THAT LIVE A LONG TIME

From the previous diagram, we can see that the Common Eider population can only grow slowly. Compared to most other species of ducks, eiders lay very few eggs. Only about half of these eggs ever hatch and few ducklings survive to be old enough to fly. Each year a typical group of thirty nesting females will lay about 100 eggs. From these eggs, only about six eiders will live to breeding age. And only three of these are likely to be females.

To make up for this low production of young females, the eider population depends upon its adults living a long time and nesting year after year.

SUBSISTENCE USE IN NORTHERN QUEBEC

The Common Eider is an important northern resource. In northern Quebec, it provides our communities with meat, eggs and down. Harvest study results show that the communities along the Hudson Bay coast of Quebec harvested about 6,800 eider ducks per year in 1979 and 1980. During the same period, Hudson Strait and Ungava Bay communities harvested about 3,300 eiders per year (see the map on the opposite page).

In the summer, eider nesting areas are visited to collect eggs and down. Eggs have always been an important part of our summer diet and eider down provides us with clothing and blankets of exceptional warmth.

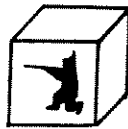
Sorry, we made a mistake. The hunter numbers on the harvest map on the next page are wrong. They should read as follows:

	Number of hunters		Number of hunters
Mailasi -	4	Quaqtaq -	26
Kuujjuarapik -	90	Kangirsuk -	47
Inukjuak -	137	Aupaluk -	19
Akulivik -	52	Tasiujaq -	27
Salluit -	66	Kuujjuaq -	162
Kangiqsujuaq -	45	Kangiqsualujjuaq -	62

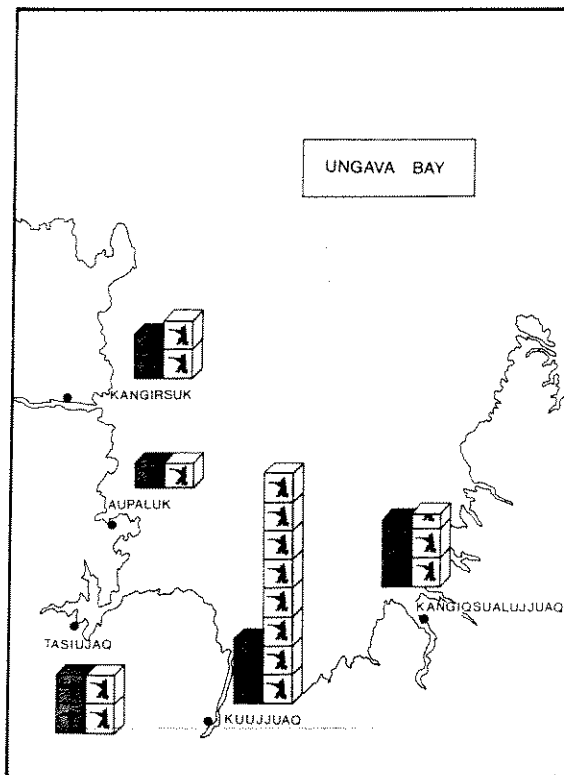
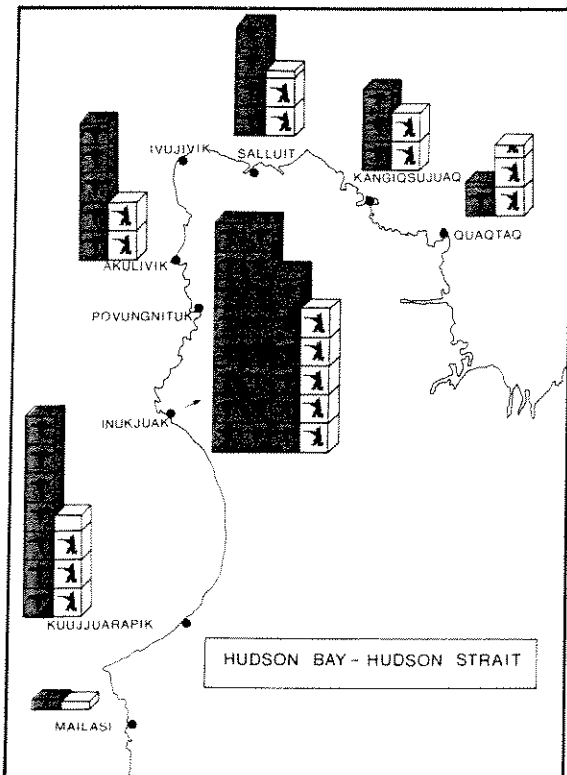
ANNUAL HARVEST OF COMMON EIDER BY COMMUNITIES 1979-1980



= 200 eiders harvested



= 10 hunters



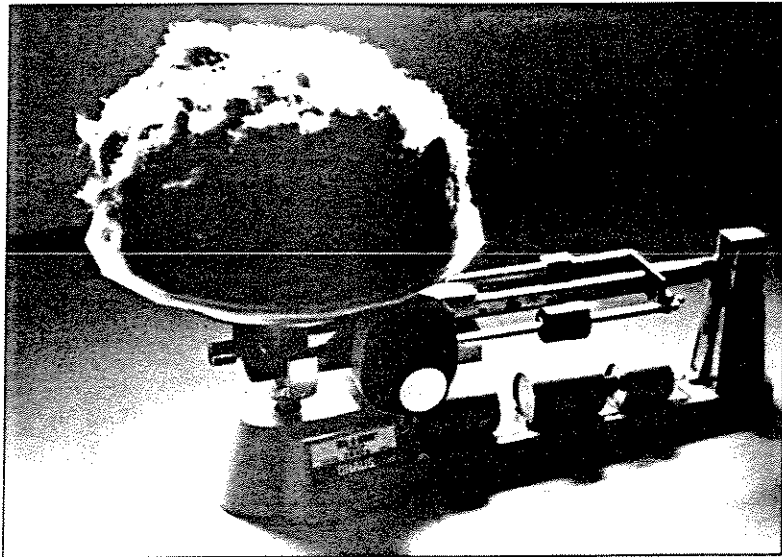
Data from: James Bay and Northern Quebec Native Harvesting Research Committee. 1982. *Research to Establish Present Levels of Native Harvesting. Harvests by the Inuit of Northern Quebec. Phase II (Yr. 1979 and 1980)*. Montreal.

Note: Data not available for Povungnituk and Ivuujvik.

COMMERCIAL USE OF THE COMMON EIDER

In northern Quebec, there has recently been a renewal of interest in selling eider down and eider down products. Eider down is in many ways an ideal resource to market from the north.

- Eider down has a world-wide reputation as a high-quality, lightweight insulator.
- It has a high price on the world market.
- It is easy and inexpensive to transport.
- An industry producing down-filled garments would create employment in the communities and assure a good financial return.
- It is a renewable resource. This means that if we properly manage the eider population, there will be a renewed supply of down each year.



by R. Dumas

BUT HOW DOES OUR USE AFFECT THE EIDERS?

The Inuit population of northern Quebec is constantly growing. What effect will our increasing demand for eider meat, eggs and down have upon the Common Eider population? If we wish to develop an eider down industry we will need a dependable supply of eider down to keep the industry going. How can we make sure that the eider population will be able to maintain itself in the face of our increasing demands?

Wildlife management is a tool which we can use to respond to these problems. The most common form of management includes two stages. First, we must monitor (keep an eye on) the size of the eider population in order to know if it is increasing, decreasing or stable. If the population is stable or increasing, then we can be confident that the eider population is not threatened. No immediate action is then necessary, although it is important that monitoring continue.

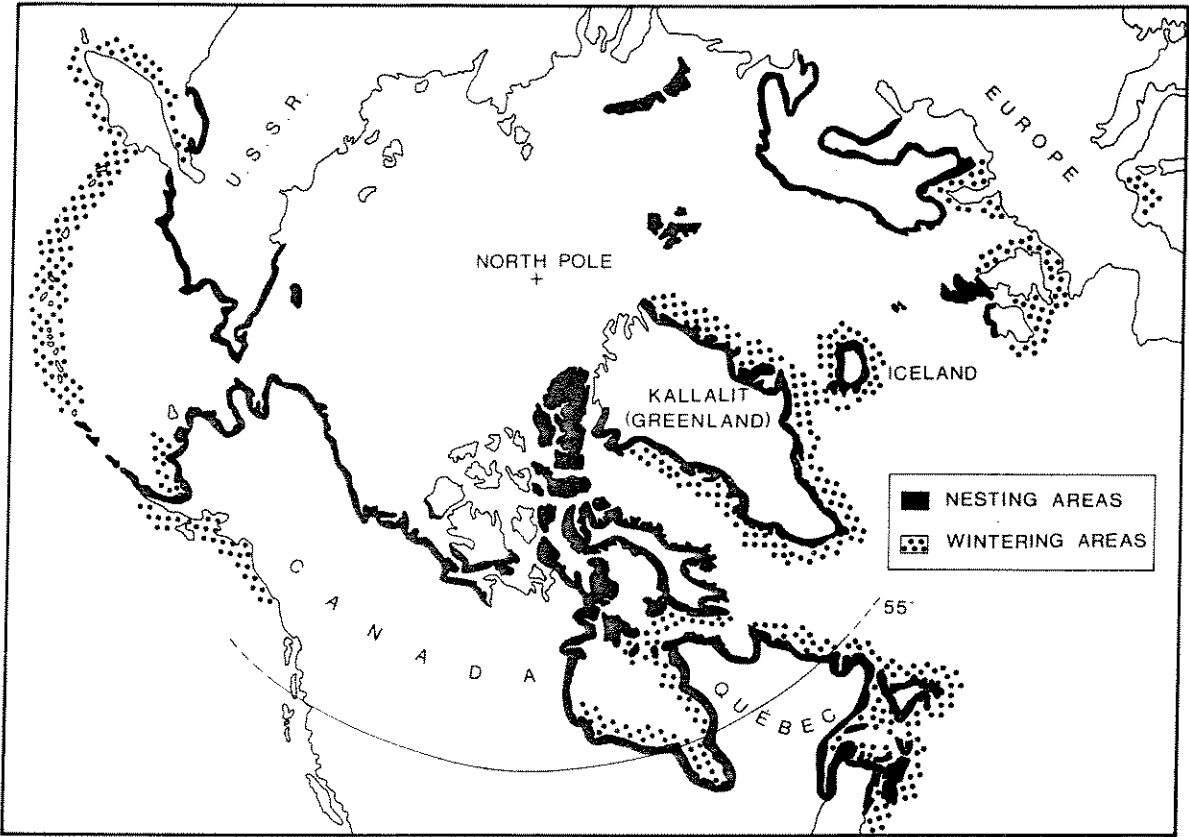
If, on the other hand, we find that the population is decreasing, or if our demands on the eider resource are expected to increase, then we move to the second stage. This involves helping the eider population to grow by either improving their environment or organizing our use of eiders so as to reduce the cost to the population.

EIDER MANAGEMENT IN THE WORLD

In the world, many different management practices have been applied to Common Eiders. Some of these have been successful at maintaining or increasing local numbers of eiders. The eider farms of Iceland, an island between Kallalit (Greenland) and Europe, are the best example of the fruits of good eider management. On the farms the ducks are carefully protected from unnecessary human disturbance and from predators. Man-made nest basins and nest shelters are used to attract and protect nesting females. As a result, the eider population has increased, and the ducks have become semi-tame.

Île Bicquette, an island on the St. Lawrence River in southern Quebec, is another striking example of successful eider management. Careful control of human disturbance on the island has been the main factor in the incredible increase in the size of the nesting population. Eider numbers have increased from 200 ducks in 1914, to 2,000 in the 1940's, to over 10,000 eiders today. From these examples, we can see that management is an effective tool for helping maintain or increase the size of an eider population.

THE WORLD DISTRIBUTION OF THE COMMON EIDER



THE CANADIAN WILDLIFE SERVICE AND ANGVIGAQ WILDLIFE MANAGEMENT INC.: COOPERATIVE EIDER MANAGEMENT IN EASTERN CANADA

The Canadian Wildlife Service, a federal government organization, has management responsibility for migratory birds throughout Canada. As a migratory species, the Common Eider falls under their jurisdiction. In southern Quebec, the Canadian Wildlife Service has cooperated with local groups to promote Common Eider management. As a result of this cooperative effort, eider numbers in the St. Lawrence estuary have increased from less than 100 breeding pairs in the early 1900's to about 20,000 pairs today.

Formed by the Inuit of northern Quebec in 1983 and supported by major regional organizations such as Kativik Regional Government and Makivik Corporation, Anguvigaq Wildlife Management Inc. has the responsibility of developing wildlife management and protecting the subsistence economy of the Inuit in northern Quebec. Wildlife committees, to be established in all northern communities, provide the essential link between Anguvigaq and the hunters. Anguvigaq will cooperate with the Canadian Wildlife Service to manage migratory birds in northern Quebec.

As a migratory species, the Common Eider remains in northern Quebec for only part of the year. Its annual migration takes it from one community to the next, and across provincial, territorial and even national boundaries. Eiders nesting along Quebec's Hudson coast, for example, may end up in the cooking pots of hunters from the Northwest Territories, Ontario or Manitoba.



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Service

The Northern type of eider, nesting along Quebec's Hudson Strait and Ungava Bay coasts, migrates even greater distances to reach its primary wintering grounds off Newfoundland's east coast and near Anticosti Island (see the map on page 2). Harvest studies by the Canadian Wildlife Service show that large numbers of eiders of the Northern type are shot on their wintering grounds in the south. We do not yet know the effect of this hunt on northern Quebec eiders. A banding program would give us a better knowledge of the eider wintering areas and the effects of the southern hunt.

For eider management to be effective, the efforts of resource managers and users in different regions must be co-ordinated. The Canadian Wildlife service plays an important role in this process. Anguvigaq Wildlife Management Inc. will represent the northern Quebec Inuit in this cooperative effort.



ANGUVIGAQ Wildlife Management Inc.
Gestion de la Faune ANGUVIGAQ Inc.

Inukjuak Office: Inukjuak, Québec, General Delivery, J0M 1M0

SOME WAYS THAT WE CAN MANAGE EIDERS IN NORTHERN QUEBEC

On the following pages different eider management practices are presented. They represent only some of the different ways eiders can be managed. Most of these methods require testing to determine if they suit the northern Quebec situation. The main purpose for presenting these management alternatives is to encourage discussion and ideas. The management methods which may eventually be selected will depend upon many things, including the condition of the local eider population and the needs of local resource users.

Anguvigaq Wildlife Management Inc. and the local Wildlife Committees will lead the discussion about how to manage eiders in northern Quebec.



by D. Nakashima



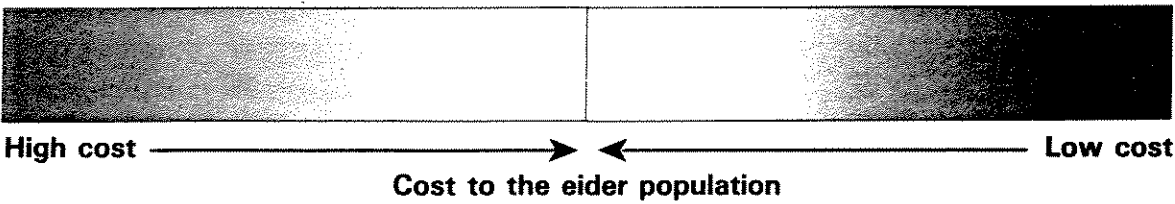
SOME WAYS THAT WE CAN MANAGE EIDERS: PLANNING OUR RESOURCE USE



There are different ways that we can use the eider resource. We can collect down or eggs, or harvest young or adult ducks. A certain cost to the eider population is associated with each of these uses. The cost is different for each type of use. Furthermore, nesting areas can be visited at different times, and eiders can be hunted at different seasons. These differences in when the resource is used also change our effect upon it.

By realizing the effect each type of use has on the eiders, we can begin to organize our resource use. In this way we can satisfy our needs while insuring the long-term survival of the Common Eider.

Legend



Collecting eider down	Collecting eider eggs	Hunting eiders
<p>Down-collecting, when planned carefully, is the least costly type of resource use. There is no direct loss to the population. An indirect cost results from disturbance of the nesting area when collecting down.</p>	<p>Egg collecting can have a direct effect on the eider population. It may reduce the number of young eiders produced. An indirect cost also results from disturbance of the nesting area.</p>	<p>Hunting is the most costly type of resource use. This is because it has a direct effect on the size of the breeding population. The cost depends on the age of the bird. A breeding female is the most valuable.</p>



SOME WAYS THAT WE CAN MANAGE EIDERS:

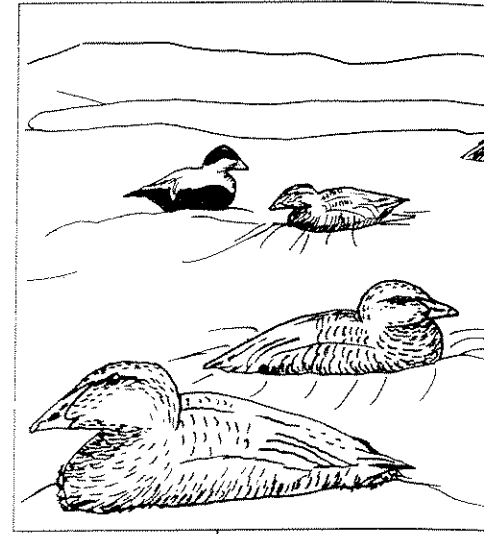


0

5

10

Number of days



15

Egg-laying

Early incubation

Incubation

Sensitive period

At this time disturbed ducks easily abandon their eggs or they may leave their nests for a long period of time.

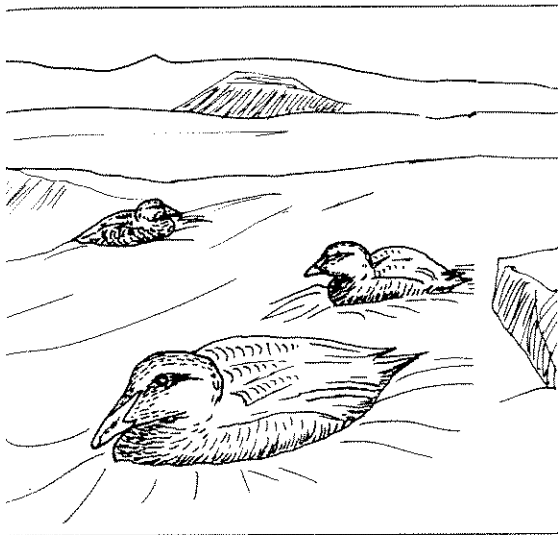
As a result more eggs may be eaten by gulls or other animals. They may also die from getting cold.

The best time to

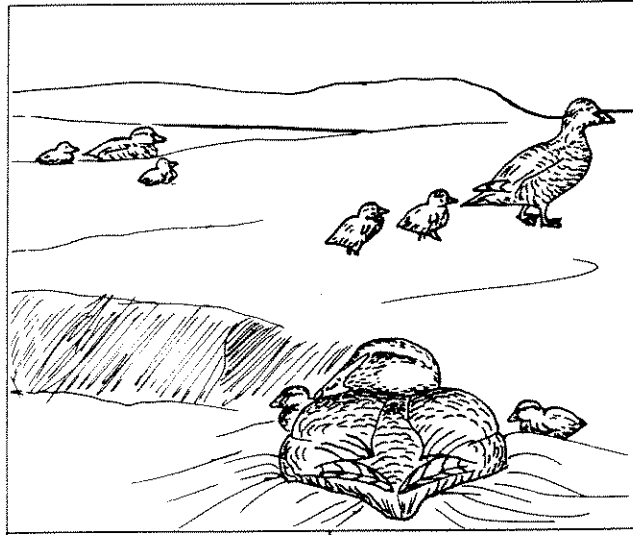
At this time, colony visits cause the least disturbance.

When females are scared off their nests, they return quickly.

PLANNING WHEN TO VISIT AN EIDER NESTING AREA



25



30

35
Number of days

40

Incubation

Hatching

visit an eider colony

Females do not abandon their nests as easily.

As a result, eggs are less likely to be eaten or die from getting cold.



Sensitive period

Disturbed females may leave their nests too early, abandoning ducklings that are not yet ready to leave the nest.

Families of eiders are easily scattered. Ducklings that are separated from adults have little chance of survival.



SOME WAYS THAT WE CAN MANAGE EIDERS:

Management practice	Description
<p data-bbox="548 427 732 455">Nest shelters</p> 	<p data-bbox="833 427 1544 527">Small houses, made of flat stones or wood, are placed over eider nest basins to protect the female and her nest.</p>
<p data-bbox="558 634 716 697">Man-made nest basins</p> 	<p data-bbox="833 634 1544 697">1) Rings of small stones are placed around a nest basin to make the edge higher.</p> <p data-bbox="833 719 1544 783">2) Hollows for nests are made where the ground is too hard for eiders to dig themselves (ex. gravel).</p>
<p data-bbox="500 846 764 910">Reduce disturbance at nesting areas</p>	<p data-bbox="833 846 1544 953">Visits to nesting areas are carefully planned to avoid unnecessary trips. Canoe routes which pass through the nesting areas are re-routed.</p>
<p data-bbox="500 1059 764 1123">Reduce disturbance at feeding sites</p>	<p data-bbox="833 1059 1544 1166">Canoe routes through feeding areas are re-routed to avoid disturbing feeding ducks. Hunting in these areas is reduced.</p>
<p data-bbox="516 1278 732 1306">Predator control</p>	<p data-bbox="833 1278 1544 1342">The number of predators of eggs, ducklings and eider ducks, in or near the nesting area, is reduced.</p>

IMPROVING THE EIDER ENVIRONMENT



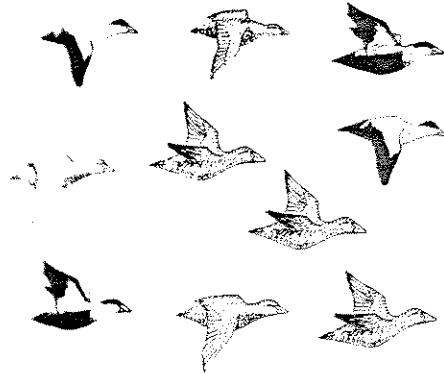
Beneficial effects	Comments
<p>Incubating females are sheltered from the weather, the eggs are protected from predators and the down protected from wind, rain and blowing debris.</p>	<p>Eiders prefer to nest under rock ledges or beside a rock face. In Iceland, nest shelters have been used for centuries.</p>
<p>1) Stone rings make the nest basins deeper. Eggs stay covered and warmer when the female is away. The down stays cleaner. 2) By digging basins, eiders can be given access to new areas.</p>	<p>1) Hunters report that stone rings used near Kangirsuk had good results. 2) In Iceland man-made basins let eiders nest on gravel hills.</p>
<p>Less disturbance means females are scared off their nests less often and thus fewer eggs/ducklings are eaten by predators.</p>	<p>On Île Bicquette and in Iceland, down farmers are strict about keeping disturbance as low as possible.</p>
<p>This is important in the spring when females are storing fat to make eggs and survive incubation. When incubating, they do not eat.</p>	<p>There is evidence that fatter females lay more eggs and better survive the nesting period.</p>
<p>The number of eggs and ducklings lost to predators are reduced.</p>	<p>Hunters have expressed concern about upsetting the natural balance.</p>



SOME WAYS THAT WE CAN MANAGE EIDERS: PLANNING WHEN TO HUNT

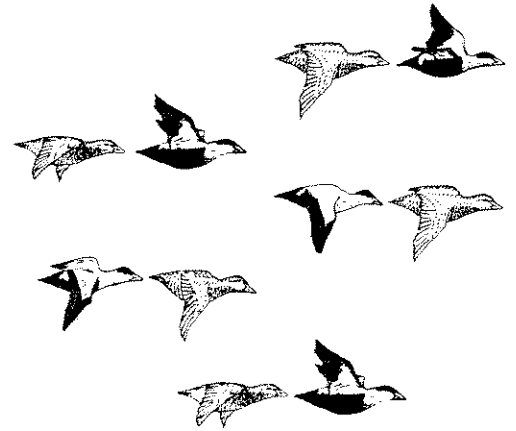


A typical fall flock



Adults: 4 females, 4 males; Juvenals: 2

A typical spring flock



Adults: 5 breeding pairs

Fall Hunt

Hunting eiders in the fall is less costly to the eider population because during the fall migration the flocks contain many young eiders. These young eiders, born during the past summer, are less valuable than adults because more than one out of every two young will die before they are old enough to breed.

Spring Hunt

During the spring, almost every eider killed is an eider that is about to breed. Spring flocks are almost entirely composed of breeding pairs. The loss of breeding individuals is costly for an eider population.

WILDLIFE RESEARCH

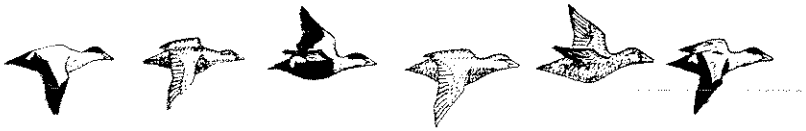
Wildlife management requires a good understanding of animals and their environment. Research provides us with some of the information that we need for good management. This information can be gathered from experienced people or can be collected in the field.

In studying animal populations, we want to find out about the importance of the factors controlling the number and geographical distribution of animals.

Maintaining a regular monitoring of these factors is important to keep an eye on the health of the population.

Research can also examine the possibilities of increasing the wildlife resource available. This can be done by testing different ways of protecting the animals and their environment.

Let's now review the major research projects recently conducted on Common Eiders in northern Quebec.

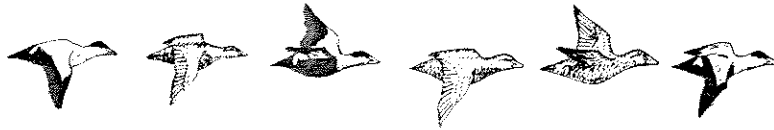


INUIT ECOLOGICAL AND LAND USE MAPPING PROJECT (since 1977)

Research by Makivik Research Department

Study Description: Hunters from northern Quebec communities are interviewed to collect their knowledge of wildlife ecology and the northern environment. Information is also gathered about their hunting, fishing and trapping activities. This study is now being conducted from the Kangiqsujuaq Cartographic Center.

Results: For the Common Eider, maps have been produced which show where they are hunted in each season and where eider eggs and down are collected.



EIDER ECOLOGICAL INFORMATION PROJECT (1979-1980)

Research by Makivik Research Department

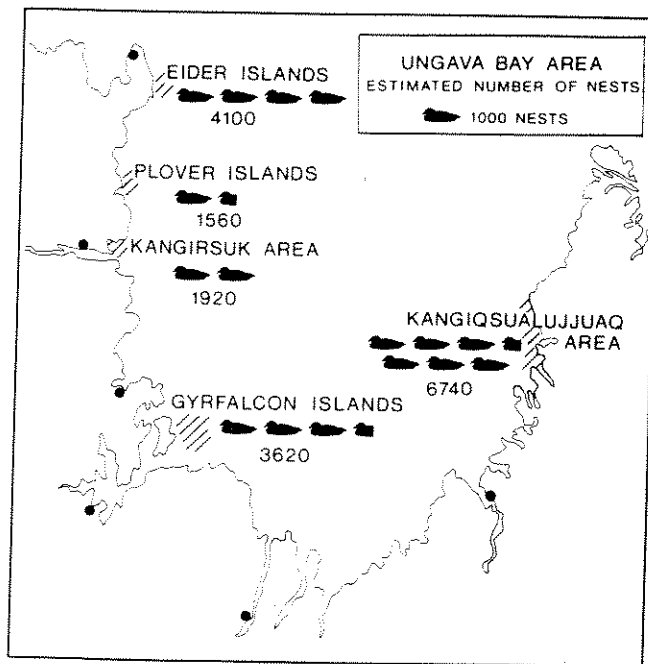
Study Description: A series of special interviews, focusing on eider ecology, were conducted with hunters from different communities.

Results: Maps have been produced which show migration routes and nesting, moulting and wintering areas. Information collected on behaviour, feeding habits and predation, complement the maps.

SURVEY OF NESTING COLONIES IN UNGAVA BAY (1980)

Research by the Canadian Wildlife Service and Makivik Research Department

Study Description: Important eider nesting areas in Ungava Bay were visited during the incubation period and the number of nests counted. From these results, the total number of eiders breeding along the coast between Salluit and Killiniq was estimated.



Estimated number of eiders 97,000
(nesting between Salluit and Killiniq)

EIDER BEHAVIOUR STUDY (1982)

Research by Makivik Research Department

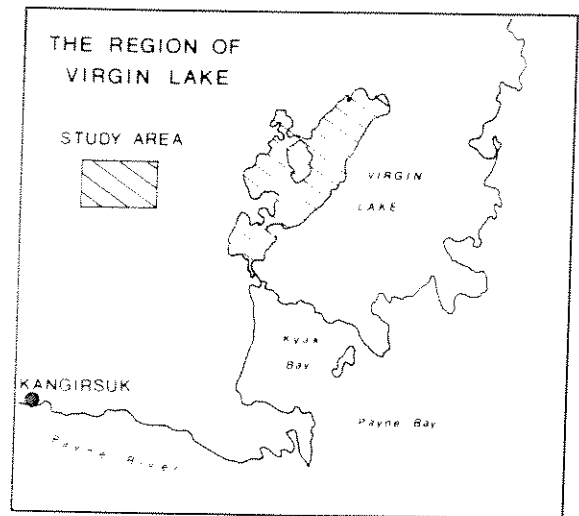
Study Description: A large number of eiders come to nest in Virgin Lake, near Kangirsuk. Three islands with a total of 450 nests were visited regularly to keep track of the number of eggs laid, lost and hatched. Each island on the lake was surveyed to count the total number of nests and eggs in the area. The down from a few nests was collected to be cleaned and weighed. The average down production per nest, times the total number of nests, gives us an estimate of the amount of down available from Virgin Lake.

Results

1530 nests were counted which means at least 3000 eiders came to breed in Virgin Lake in 1982.

On average, 3 to 4 eggs were laid per nest, out of which 2 ducklings hatched.

28 pounds of cleaned eiderdown is estimated to be available from Virgin Lake.



EIDER MANAGEMENT STUDY (started in 1983)

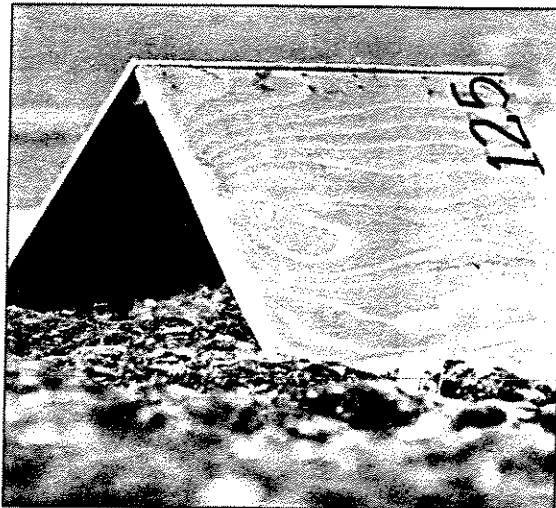
Research by the Kuujuuaq Research Centre

Study Description: Now that we have an idea of the number of nesting eiders at Virgin Lake and their production of ducklings, we can try to improve it. In the spring, nest shelters were built on an island to measure how well they protect eider eggs from gulls, and how well they protect the down from wind and rain. As in 1982, the number of nests and eggs were counted on each island to monitor the size of the breeding population. The effect of any present or future management practices can be measured by repeating such a census year after year.

Results

1460 nests were counted in 1983. (This does not include an unknown number of nests destroyed by dogs on 16 islands. These islands had 190 nests in 1982.) This suggests that at least 3000 eiders came to breed in Virgin Lake in 1983.

The study of nest shelters is continuing.



by M. Koneak

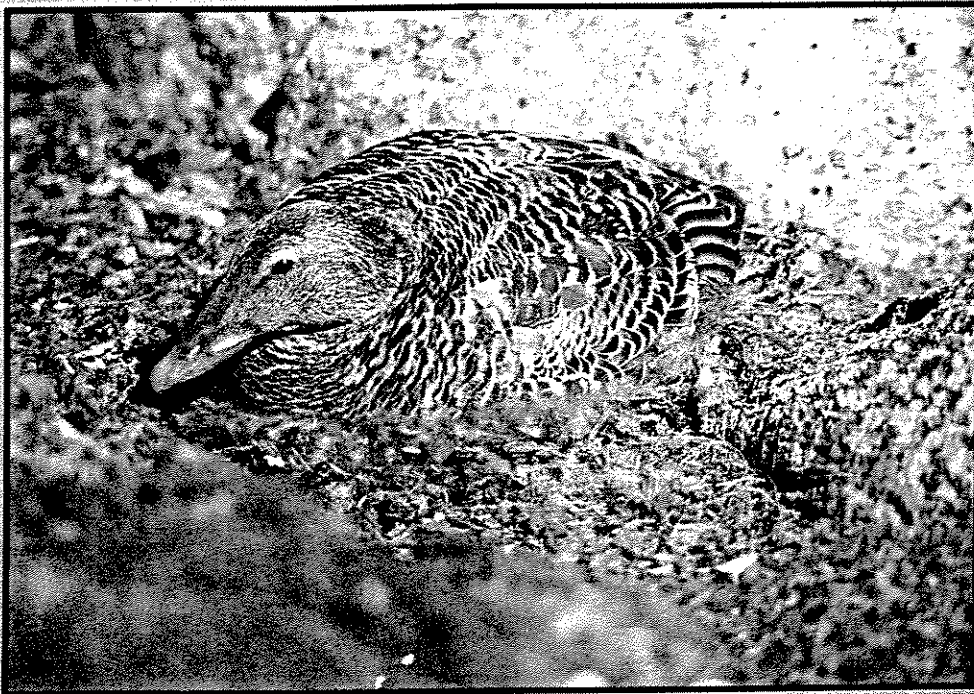
SUMMARY

1. Wildlife management aims at balancing our use of the resource with its natural production. This insures that the resource will be available for the use of future generations.
2. Very few newborn eiders will survive to breeding age, which means that the eider population can grow only very slowly.
3. A good management plan for eiders must take into account all the factors that can affect the eider population.
4. Anguvigaq Wildlife Management Inc. is responsible for developing and coordinating eider management in northern Quebec, in cooperation with the Canadian Wildlife Service.



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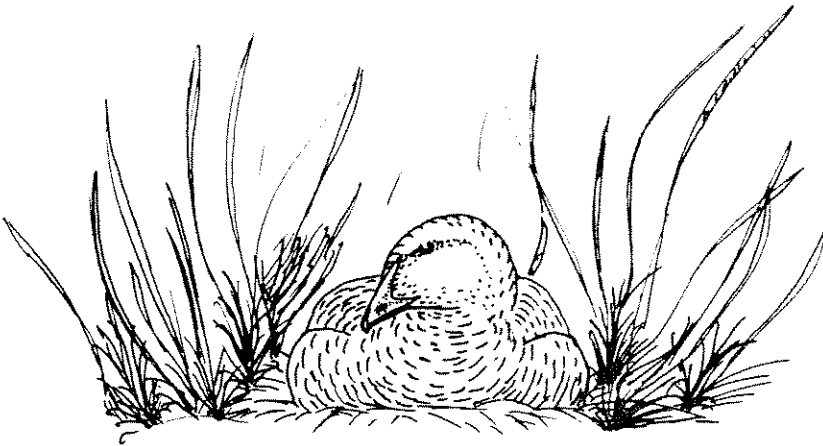
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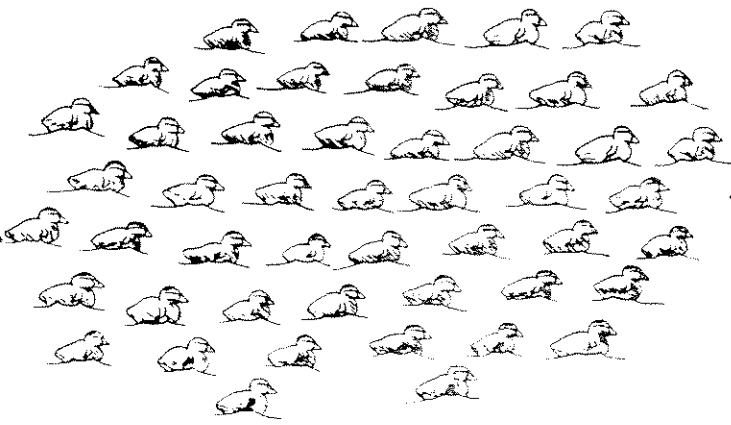
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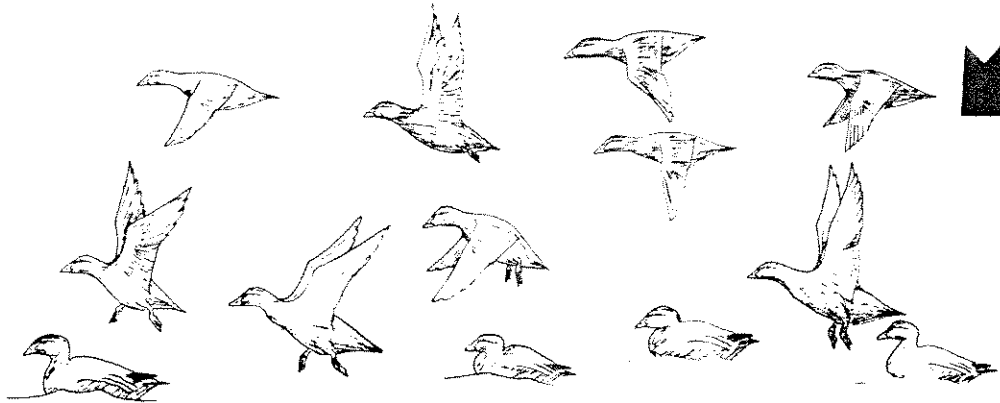
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50 ԲՆՆԻՉԻ ԲՈՎՆԱԿՆԵՐՆԵՐ ԸՆԴՈՒՆԻ 100-ՄԻ ԼՆՄՄԻ



ԸՆԴՈՒՆԻ 50-ԲՆ ԲՈՎՆԱԿՆԵՐՆԵՐ, ՅԵՆՆԻ ԼՎԵՐՆԱԿՆԵՐ ԵՎ ԵՆՆԻ ԲՈՎՆԱԿՆԵՐՆԵՐ ԵՎ ԵՆՆԻ ԲՈՎՆԱԿՆԵՐՆԵՐ





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▷Ρ⁹Δ⁹ε⁹Ω⁹ Γ⁹Ω⁹ε⁹Ω⁹ C

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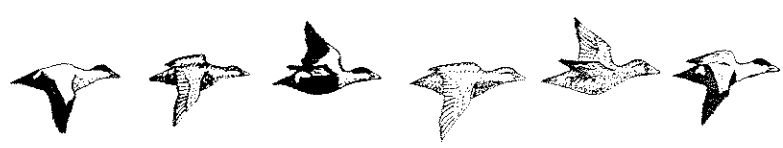
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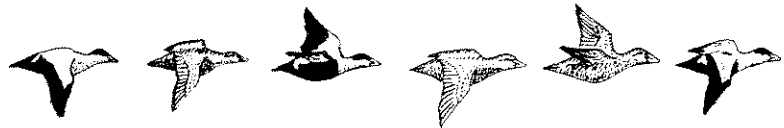


**ᐃᓄᐃᑦ ᐱᑭᑦᐱᐅᑦᑕᑕᑕᑦ ᓄᓄᑦᑕ ᐃᑕᑦᓂᐅᑦᑕᑦ ᑎᑎᑦᑕᐃᓂᑦᑕ
ᓄᓄᑦᑕᐅᑦ (ᑕᐃᐅᑦᑕ 1977)**

ᑭᐅᑭᑦᑕᐱᓂᐅᑦ ᐅᑭᑦᐱᐅᑦ ᑭᐅᑭᑦᑕᑎᑦᑦᓄᑦ

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ᑕᑦᑕᑦᑕᑦ. ᑕᐅᑦᑕ ᑭᐅᑭᑦᑕᐅᑦᑕᑦ ᑕᑦᑕᑦᑕᑦᑕᑦ ᑭᐅᑭᑦᑕᐱᐅᑦᑕ.

ᑭᐅᑭᑦᑕᐅᑦᑕ: ᑕᑕᑦᑕᑦᑕᑦ, ᓄᓄᑦᑕ ᑕᓄᑦᑕᑦᑕᑦ ᓄᐃᑕᑎᑦᑕᑦᑕᑦ ᓄᓄ
ᑕᑕᑦᑕᑦᑕᑦᑕᑦᑕᑦ ᑕᑕᑦᑕᑦᑕᑦᑕᑦ ᐃᑦᐅᑕ ᓄᓄ ᑕᑕᑦ ᐅᑦᑕᑦᑕᑦ ᑕᑕᑦᑕᑦᑕᑦ
ᓄᐃᑕᐅᑦᑕᑦᑕᑦ.



ᑕᑕᑦ ᐱᑭᑦᐱᑦᑕᑦᑕᑦ ᑭᐅᑭᑦᑕᑦᑕᑦ (1979-1980)

ᑭᐅᑭᑦᑕᐅᑦᐱᓂᑦᑕ ᐅᑭᑦᐱᐅᑦ ᑭᐅᑭᑦᑕᑎᑦᑦᓄᑦ

ᑭᐅᑭᑦᑕᐅᑦᐱᓂᑦᑕ: ᐃᑦᑕᐅᑦᑕᑦᑕᑦ ᐃᐱᑎᓂᐅᑦᑕ, ᑕᑕᑦ ᐱᑭᑦᐱᑦᑕᑦᑕᑦ ᑕᑦᑕᑦᑕᑦ,
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