SCIENCE & ENVIRONMENT

A circumpolar perspective on murres

BY DANIEL MCKILLOP

A presentation on seabirds was delivered at the Museum of Natural History by Don Chardine in the evening of March 8.

Don Chardine received his doctorate at Durham University in England, and has worked as a research scientist for the Canadian Wildlife Service in Newfoundland. He has also had a great deal of experience with the management and population modelling of murres, particularly in the nine years he spent in Newfoundland working on murres.

At the opening of the presentation Dr. Chardine provided a slide of the rocky coasts on Prince Leopold Island, located in the Arctic, which he described as the world of the two species of murres he was to discuss that evening.

The two species of murres in the world are the thicked-billed murre, which has a jet-black coloured head and neck, and the common murre, which is closer to brown than black. Both species have white-coloured fronts, and the common murre is slightly larger in size.

"They are long-bodied, fairly chunky, relatively short with stubby wings," Dr. Chardine explained. "Murres are about 1 kilogram in size, which is close to the limit at which they can fly, given the evolutionary development of their wings." Dr. Chardine presented slides of both living and extinct relatives of the murres, which include puffins and gulls, as well as the great auk. "In the case of penguins," he said,"their wings have evolved to be used [exclusively] in the water, since their bodies have grown too large in size. Murres are a diving species as well, with wings that are relatively small and stiff, but not as extreme as penguins. They are able to fly, but barely...they are at the [evolutionary] edge [of flight]."

The main feature that distinguishes one murre species from the other is their distribution. Common murres can be found as far south as California and in places like northern France, though not as abundantly. The thicked-billed murres are generally found further north.

Murres breed in colonies, and nest closely together on the ledges of cliffs, or huddle together in large groups in flat areas.

"We don't really know why seabirds nest in such dense colonies...there are [only] a lot of theories," said Chardine. "Murres do not build actual nests at all, but lay their eggs directly on the rocks. The colonies are very tightly packed, with 20 to 25 birds per square meter."

In Canada, the majority of large murre colonies are located in the east; there is an estimated 400,000 birds on Akpatok Island, for instance. The largest colony of common murres in Canada, however, is on Funk Island, a tooth-shaped island located near the northeast coast of Newfoundland. Funk Island was the last breeding place of a large, penguin-like bird called the great auk, now extinct.

According to Chardine, "it is difficult to assess the status of the species. Breeding success is only studied from remote positions...and is very tedious." In order to measure hatching success, researchers must closely and faithfully number the eggs and chicks in a given colony, as well as know the time of breeding, and collect the data from previous days. "The data is like gold...[and is] very satisfying," said Chardine.

Murres lay a single large egg per year, which is slightly more narrow and pointed than the eggs of many other bird species. A popular explanation for this adaptation suggests that, since the egg rolls more in a circle instead of a straight line when moved, the shape of the egg would more likely result in the egg remaining on the narrow ledge than if it were shaped like a more conventional egg.

Parent murres often have less than one chick per year, since only 36 to 70 percent of the chicks born into a colony survive into adulthood. The infrequent breeding of the murre, known as the "life history strategy," is compensated by a lengthy lifespan of a potential 20 to 25 years. "You very often see the bird tightly holding the egg between its feet, and pressing very tightly on the egg with its breast, so that the egg doesn't fall into the water," Chardine said. The young accompany the male parent out to sea to hunt when they are only a quarter their adult size.

By the time the young reach 14 to 20 days old, they can glide into the sea from the tops of the cliffs where they nest, though they are not able to actually fly.

"It is interesting to see how the male parent will stay close to the chick by gliding alongside it, and follow it into the water." said Chardine.

He also explained how the chicks squeal if separated from the parent, who are able to recognize the chick's call.

Thicked-billed murres mostly feed on crustacea, and common murres generally rely on fish for their diet: small herring during Maritime winters, and capelin, a silvery North Atlantic coastal fish that is high in energy. Since murres have difficulty flying, there is a limit to the amount of food they are able to carry back to the nesting site, known as a payload size. When chicks reach a quarter of their eventual size, they are too large to be fed by the parents; at this age the young are waterproof and barely, but able, to feed themselves. During their migration, many murres end up in Greenland and Newfoundland, from various northern colonies.

Dr. Don Chardine also discussed the need to conserve seabird species like murres, by protecting them from the damage of oil spills. The problem of oil being dumped by vessels into the water is a chronic one. The oil from the sea surface will kill murres by affecting the waterproof protection of the birds' feathers. Only a small amount of oil can make the murres heavier and unable to maintain their body temperature. Because they also preen themselves and ingest the oil, it can take as few as two to three days before they die.

"We're doing a lot of work in reducing the amount of oil going into the ocean, and thereby helping to preserve the seabird life. I think we're having an effect, very slowly," said Chardine.

Since they are a diving species, murres often get caught in fishing nets as well, thus the issue of industrial development on the coasts is also sometimes a problem.

In Greenland and Newfoundland, Murres can be hunted legally, and have been for generations.

"The problem is that the privilege to hunt murres is often abused," said Chardine.

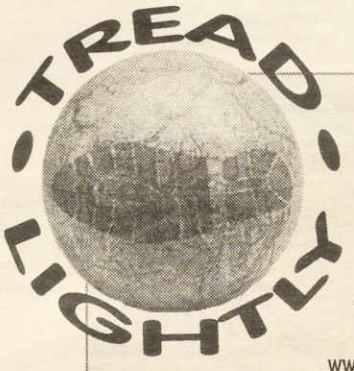
In Newfoundland, and elsewhere in North America, it is not permitted to sell seabirds, since they are protected as a migratory bird. However, there has been a decline in the population of many colonies, since historically, the hunts reduced the murre numbers below a level of sustainability.

"Despite the lack of concrete evidence, we were concerned," said Chardine.

The Migratory Convention Act came into effect in Newfoundland when the province joined Canada in 1949. The Act, written in 1916, classified murres as non game birds, which included auks. Despite this, things went back and forth, and the hunt [for murres] did go on, and people turned a blind eye.

No permit was needed to hunt murres in Newfoundland, and there was no legal limit to the number of birds that could be hunted. However, only residents of the province were able to hunt murres, and only for food. In 1993, a "bag limit" of 20 birds per hunter, per day was introduced, with hunting seasons varying from zone to zone (two to four months, depending on the area in Newfoundland). Between 1983 and 1984, an estimated one million birds were hunted, while current annual estimates indicate that around 100,000 to 200,000 birds are killed.

As a member of the Conservation of Arctic Flora and Fauna, Dr. Chardine said that "all countries are worried about oil pollution, by-catch problems, over-hunting, and other issues. There is no evidence of a decline in Canadian species [of murres], but this doesn't mean there isn't any. We don't want the murres to suffer the same fate as the [great] auks, and if we continue down the present path, they won't. But we want to be knee-deep in them. We want to be sure."



DID YOU KNOW?

A big problem facing our world is that there is little information and education about environmentalism. The best thing you can do is get informed. You should check out these websites:

www.greenpeacecanada.org—Greenpeace's goal is to ensure the ability of the Earth to nurture life in all its diversity.

www.lunatree.org—Julia Butterfly helped protect California's redwoods by spending one year 180 feet up a tree called Luna, protesting logging practices.

www.greenspiration.org—Canadian web for environmental activism and action.

www.earthfirstjournal.org—Earth First Journal—A radical newspaper focused on the (deep) ecology movement.

www.northwestwatch.org—NEW's mission is to foster a sustainable economy and way of life.

www.adbusters.org—Culture jammers who are turning advertising on its head.

ASK GREEN GIRL

Dear Greengirl,

I'm a dal student more than a little confused by the excess paper distribution that occurs every week especially when contrasted to your new "enviro-page" addition. What's with all the waste? It's one thing for *the Gazette* to want to reach as many students as possible, but it's another thing to be dumping massive loads anywhere that will let you, in the vain hope that each and everyone will eventually be read. Almost half of them aren't even opened. This has nothing to do with the quality or popularity of the paper — there are just way to many printed. Can we do anything about this? I'm sure it must have been noticed by someone else on your distribution staff. Such a relatively small change, (as easy as checking out how many papers are being consistently left unopened, over a projected period of a few weeks; something that would save $ that could go towards something more fun, or worthwhile than an old pile of fermenting papers!) sets good examples. I ask you — WILL *the Gazette* put its effort where its mouth is and take an initiative on the reckless, senseless killing of tree's, polluting of rivers?

Rhetorically yours,
Milena Gibson

Thanks Milena for bringing up such an important and controversial issue! And kudos to you for your logic and resoluteness! I know that here at *the Gazette* there has been much talk regarding our wasteful distribution, and yet typical to many organizations, there hasn't been much action. This isn't because none of us care, but rather that there are a couple obstacles to coming up with a solution. Here is the situation as I understand it:

The national advertising agency (C+) which supplies the university papers of the Canadian University Press (CUP) with ads attributes different 'line prices,' or ad prices, according to the size of a paper's distribution. The cut off between a 'small' and 'medium' sized paper is a distribution of 10,000 papers. So, if our distribution was less than 10,000, our ad revenue from national ads, which C+ provides, would be significantly reduced. Not only would *the Gazette* receive less money per ad, but we might also receive less ads, as fewer companies would want to advertise in our 'small' paper.

So this aspect of the problem comes down to the bottom line: could we afford to still run the paper with the significantly reduced revenue? Since we would enjoy minimal savings from reducing our distribution size — the answer to this is no, not unless some alternatives are explored, including possibly procuring more local advertising.

But there is another, potentially more feasible solution. Though our distributor *does* remove unused papers each week for recycling, there is a lot *the Gazette* can do to make our distribution more efficient and effective. This could include changing our distribution pattern so that we disperse a few papers in many places, as opposed to many papers in a few. Indeed we should be better tracking our distribution now so that we are aware of where we can move a lot of papers, and where the demand is low.

But, like anything else, it is money that makes the wheels turn. Both increasing our area of distribution, or conversely reducing our size of distribution to under 10,000 will cost money. And money is not something that a typical student newspaper has in excess. More than that, it requires someone to put in the energy to make the changes. With this editorial year nearly over, and with the scramble to get people to run for next year's positions, energy is something we don't have an excess of.

Though *the Gazette* hasn't made any changes yet this year on this issue, it is something that I would certainly like to see changed for next year. However it will be up to the new editorial board. If you want to see a difference, how about coming out to a meeting? Every Monday, 4:30 pm in SUB rm. 312.