

Exploitation of off-shore oil a concern of many

By J. DAVID MILLER

The exploitation of off-shore oil resources is a subject which concerns governments, oil companies, engineers and environmentalists. Environmentalists, or rather everyone who is concerned with the preservation of our environment. The environment was an important focus of discussion at a recent conference in St. John's Newfoundland entitled "Offshore environment in the 80s." Fisheries protection in the face of oil spills is of great concern if only for economic reasons. The Newfoundland fishery accounts for a significant portion of Canada's total and Canada is the world's number one exporter of fish.

Seabirds, although very much affected by oil pollution are not protected by economic need. The continental shelf off Newfoundland is one of the most important areas in the world for seabirds according to Dr. Richard Brown, Director-General of the Canadian Wildlife Service in Halifax.

Newfoundland and Labrador have most of Atlantic Canada's seabirds with a population totalling 3,663,000. New Brunswick has 2,500, Nova Scotia 9,200, Quebec, 196,000 and PEI, 400. The reasons for the low populations in the Maritime provinces and Quebec are two-fold: geology, that is there are no cliffs (inappropriate terrain for breeding) and hunting to the point of species extinction in Nova Scotia and New Brunswick. The continental shelf area of Newfoundland not only has most of Atlantic Canada's seabirds but from 10-80 per cent of the world's populations of at least three species. In addition, over one-quarter of the world's seabirds cross this region during migration.

The regional concentration of seabirds around Newfoundland manifests itself in great concentrations of birds at about six major nesting areas including Funk Island which has over 804,000 birds, (seven species) and Withers

Bay which has over 689,900 birds (six species).

Seabirds feed in areas of concentrated plankton in the sea called 'patches.' The average concentration of carbon in the sea is about one g/litre whereas in patches it can be over 200 g/litre. Thus, the only place where these animals can economically feed is in these patches. The term comes from the patchy distribution (uneven distribution) of plankton resulting from variable hydrographic and wind conditions which produce upwellings. These upwellings bring mineral nutrients from the seabed and allows the rapid growth of planktonic organisms. These upwellings are variable in space and time, that is, it is very difficult to predict where and when they will occur. The seabirds seek them out and when scientists fly over the continental shelf counting birds, the observed densities of birds on the sea surface will show where a patch is. Satellite photographs of the sea temperature also show where these patches are, thus a correlation can be made.

Oil pollution can therefore be devastating to seabirds in two ways. If an oil spill drifts into a major nesting area hundreds of thousands of birds can be killed through shore oiling and young birds (which cannot fly) swimming around. Similarly, if

an oil spill happens near or drifts over a patch, then the feeding populations will be killed. Seabirds reproduce very slowly and live a long time (ca. 15 years). Thus the effects of a major spill will harm reproduction for a very long time. Organisms which have a short life but reproduce in great numbers are somewhat less affected.

Oil affects birds in several ways. A heavily-oiled bird will die right away because oil breaks down the feather structure which simultaneously eliminates its waterproofing and insulation characteristics. If a bird is slightly oiled, the waterproofing characteristic will go and the bird will be unable to feed and will starve to death in a week.

Minimal ingestion of the oil has sublethal effects, that is effects not resulting in immediate death. These include the production of infertile eggs and the disruption of the salt gland function. A salt gland is an organ which regulates the concentration of salt in the blood. Animals which ingest salt water must continually excrete the salts. If the salt gland doesn't function, death will eventually result.

Non remarkably then, the size of an oil spill is not related to the bird kill. For example, the Arrow spill was 10,400 tonnes and probably 36,000 birds were killed. The Irving Whale

spill was only 13-70 tonnes and probably 25,000 birds were killed. It is all a matter of where the oil is spilled. Unfortunately, when there has been a major oil spill, several instances of oil tankers taking advantage of the general confusion to illegally wash their tanks out have been known, thus releasing even more oil. It is very difficult to track down offenders.

Oil development will proceed off Newfoundland, but it is very important to avoid oil spills. When they occur, it is even more important to control them in areas of high vulnerability such as nesting sites and feeding areas. These principles illustrate the kind of information which should be used in locating oil tanker traffic. An oil spill around Head Harbour Passage (the proposed Eastport Maine refinery) would destroy the single most productive part of the Bay of Fundy. This would result in the death of fish resident off the Nova Scotia side of the Bay because the nutrients produced in the Grand Manan area are taken there through circulation. An oil spill off Saint John, the site of the Irving supertanker port would be bad, but not as bad.

Other animals such as fish, whales and other marine animals are affected by oil pollution in similar ways to those described for seabirds.

Computing centre offering non-credit courses

Non-credit courses are once again being offered by the UNB Computing Centre this term. All lectures are scheduled from 4-5 p.m. in Head Hall. All courses are free.

You must, however, register for each course you wish to attend. If fewer than four persons have registered two days before the course, it will be cancelled and those planning to attend will be notified by phone.

Registration forms can be obtained at the Computing Centre reception area, D-level, Head Hall. Questions can be directed to User Services at 453-4573.

The courses include: Intro to VSPC, Jan. 26, 28; intro to BASIC, Jan. 27, 29; Intro to APL, Jan. 27; Intro to SCRIPT, Feb. 2, 4; Intro to VSPC Fortran, Feb. 3, 4; and Intro to SAS Feb. 3.

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