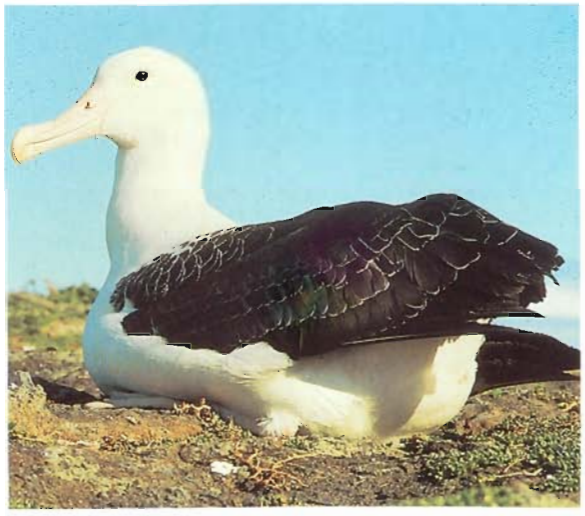

WHAT CAN BE DONE IN ANTARCTICA TO AVOID THE PROBLEM?

Because marine debris is a global problem, it will ultimately require the efforts of all countries to solve it. The persistent nature of synthetic fishing gear and plastic convenience articles and the threat they pose to marine animals requires that special attention be given to their use and handling.

Following are some suggested ways to help combat the marine debris problem.

- Retain net fragments and all other potentially harmful debris for disposal at ports outside Antarctica.
- Take on board the minimum amount of nondegradable products for the crews. Where possible, make use of recycling stations. For ports without such facilities, encourage authorities to provide them.
- Supply vessels with bulk containers for drinks and other products to better control and manage their disposal.
- Make maximum use of available technology to relocate and retrieve nets and other fishing gear in order to minimize their loss. If possible bring ashore for disposal at ports outside Antarctica any derelict fishing gear you find at sea. If derelict gear cannot be brought ashore, dispose of it in a responsible manner by rendering it incapable of catching or entrapping fish and other marine organisms.
- If plastics, including fishing gear, have to be discarded at sea to protect life or safety, render them where possible incapable of entangling marine life.

In the end, it will be the actions of individuals that will determine the success or failure of any program aimed at reducing marine debris. Every time someone throws overboard a piece of torn or worn-out webbing, fish line, six-pack yoke, styrofoam cup, or almost any other object, it adds to the problem. Even the simple act of cutting a strapping band before discarding it will prevent it from ever becoming a "choke collar" around the neck of a seal or some other unfortunate animal.

Photographs by P.L. Keage
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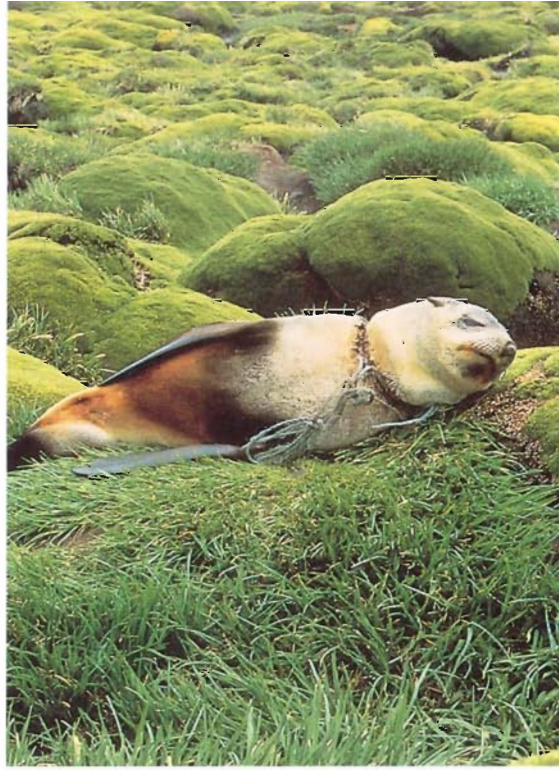

MARINE DEBRIS

A POTENTIAL THREAT TO ANTARCTIC MARINE ANIMALS

MARINE DEBRIS – A POTENTIAL THREAT TO ANTARCTIC MARINE ANIMALS

Worldwide there is growing evidence that substantial numbers of birds, marine mammals, fish and other marine organisms are being caught and killed in lost and discarded fishing gear and other debris, and dying due to ingestion of plastic bags, and other types of foreign substances thrown into the sea.

Compared to other regions of the world, the level of fishing and other human activities in the Antarctic has been low and the problem of marine debris is relatively less critical. But it is known that lost and discarded fishing gear and other rubbish dumped overboard from ships have entangled Antarctic animals.

WHAT IS MARINE DEBRIS AND WHERE DOES IT COME FROM?

By definition, marine debris is any object of wood, metal, glass, rubber, cloth, paper, plastic, etc. that has been lost or discarded in the marine environment. Depending upon the kind of debris, it may float at the surface, be suspended at mid-depths or sink to the sea floor. Ocean currents eventually carry much of the floating debris ashore.

Almost all human activities contribute in some way to the marine debris problem, but because of the low level of other activities in Antarctica commercial fisheries are the principal sources. They contribute both fishery-generated and crew-generated debris. Fishery-generated debris refers to gear such as nets, pots, traps, setlines, etc. which is accidentally lost while fishing. Crew-generated debris includes worn or damaged fishing gear, such as pieces of net webbing, that is deliberately discarded at sea along with a variety of convenience items and packaging materials such as bottles, cans, bags, boxes, etc.

Once released into the ocean, floating debris tends to be accumulated by natural processes along lines of convergence between discrete water masses, at the core of major current gyres, or on beaches. Because the release of debris is associated with human activity, it tends to be most concentrated around important fishing grounds, along well-travelled shipping corridors, or near major ocean dumping sites. In many cases, these areas overlap particularly important habitats for large numbers of seals, seabirds and other marine animals.

Thus, it is important to note that debris is not distributed randomly at sea but is often concentrated in the very areas that are of particular importance to marine animals.

PLASTICS – A SPECIAL CASE

Plastics are perhaps as great an environmental threat to marine animals as all the other kinds of debris combined.

At least two factors affect the relative danger posed by synthetic debris – chemical composition and physical configuration. In the past thirty years, plastics and related synthetic material have been used increasingly in maritime industries to produce all types of everyday items. Some of the most desirable properties of synthetic materials – their low cost, light weight, durability, and great strength – also make the articles more likely to be discarded, less likely to sink, longer lasting once discarded or lost, harder for marine organisms to escape from once entangled, and less likely to be digested or elimated once ingested.

A shift from the use of natural fibres to synthetic fibres for the construction of nets and other fishing gear has resulted in commercial fisheries becoming a large contributor to plastic pollution. The conversion from degradable natural fibres to virtually non-degradable synthetic fibres began in the 1940s and by 1970 was complete for most of the major fishing nations. Although the exact amount of fishing gear lost and discarded at sea each year is unknown some investigators estimate that it could exceed 100 000 tonnes.

THE MECHANISM OF IMPACT ON MARINE ANIMALS

Direct threats to marine life appear to be relatively uncomplicated and mechanical. Animals that become entangled may drown, have their ability to catch food or avoid predators impaired, incur wounds and infections from the abrasive or cutting action of the debris, or have their normal behaviour patterns altered in ways that place them at a survival disadvantage.

For marine mammals, lost and discarded gill nets, trawl nets, and packing bands probably pose the greatest threat due to their capacity for entangling and trapping animals in webbing or loops.

Lost or abandoned fishing nets also pose risks to fish. Entire driftnets and trawl nets are not uncommonly lost or abandoned at sea. These "ghost nets" continue to ensnare fish for years after they are lost.

Seabirds can also become entangled in lost and discarded nets drifting at the sea surface, but the threat is thought to be small compared with losses due to entanglement in active gear. Probably a greater threat to seabirds is posed by small plastic particles floating at the sea surface. This debris is ingested by seabirds and fish which may be unable to distinguish between normal prey items and small pieces of floating plastics. These items can cause blockage of the intestine or ulceration of the stomach lining.