



**POLLUTION AND WILDLIFE**  
*A response from the CMS Family*



## Lead Pollution

Lead is a toxic heavy metal for which there is no safe exposure level for humans and wildlife alike. Lead poisoning in sub-lethal doses can damage the brain, the nervous and reproductive systems, and cause kidney disease, cancer, high blood pressure, anaemia, birth defects, miscarriage, nerve disorders, and memory and concentration problems.

Because of its toxicity, lead has been removed from various paints, water pipes and some forms of gasoline to protect human health and our environment. Yet lead is still widely used in hunting and fishing activities poisoning millions of animals each year and contaminating land and waterways.

**Annually, in USA an estimated 10 to 20 million animals die from ingesting spent lead shot**, fragments or other animals contaminated with lead ammunition. Animals at every level of the food chain face varying degrees of exposure from frogs, mice and squirrels to ducks, swans and deer to eagles, bears and people. Individuals that consume meat from animals killed by lead are at high risk for lead exposure.

Hunting ammunition is responsible for large-scale mortality in birds. **In Europe, it has been estimated that approximately a million wildfowl die every winter** from lead poisoning caused by ingestion of lead gunshot.

**Many manufacturers are developing non-toxic ammunition** using the most advanced technologies in response to restrictions on the use of lead, human health risks and costs of cleaning up shooting ranges. Nevertheless, despite excellent alternatives, lead ammunition still prevails and exposes people and animals to this life-threatening poison.

Several migratory waterbird species are known to suffer from lead poisoning following the ingestion of lead fishing weights. Based on annual purchases in the USA, it is estimated that approximately **4,000 tonnes of fishing sinkers are lost or discarded in the environment**.

## Actions by the CMS Family

In 2011, an expert Working Group was established under CMS to review evidence and recommend suitable responses to prevent and minimize bird poisoning. To this end, the Group brought together existing data and produced **guidelines on preventing, reducing or controlling poisoning** from use of lead for hunting and fishing in addition to other substances such as agriculture pesticides, poison baits, veterinary pharmaceuticals.

The Eleventh Meeting of the Conference of the Parties to CMS (CMS COP11) in 2014 endorsed this guidance, through Resolution 11.15. The Guidelines recommend **the phase-out of lead ammunition across all habitats and**

**lead fishing weights in freshwater habitats by the end of 2017.**

Despite this decision, which was the result of broad consultations among hunting, wildlife management and conservation stakeholders, the transition to non-toxic ammunition has been slow. However, thanks to the leading initiative of the African-Eurasian Waterbird Agreement (AEWA), several countries have enacted a ban on the use of lead shot in wetlands since the 1990s.

In September 2016, building on the work of CMS and AEWA, the World Conservation Congress of the International Union for the Conservation of Nature adopted an important motion to help make lead

ammunition a poison of the past calling for the stakeholders to continue to work together for a non-toxic ammunition future.

Recently, the CMS Preventing Poisoning Working Group pursued its work on the lead issue and will request the forthcoming CMS COP12 (23-28 October 2017, Manila) to **establish a global Lead Task Force** to facilitate concerted efforts with key partners including relevant industries and promote actions to minimize poisoning of migratory birds from anthropogenic environmental sources of lead, namely hunting ammunition, fishing weights as well as leaded paint, discarded lead and that emanating from industrial mining and smelting processes.



## Marine Debris

Huge amounts of litter are lost or discarded every day, making marine debris one of the most widespread pollution problems facing the world's ocean and waterways. **There are an estimated 5.25 trillion pieces of plastic debris in the ocean.** Of that mass, only a small percentage floats on the surface, while massive amounts of plastic litter the deep sea.

Experts have estimated that **there are roughly 640,000 tonnes of 'ghost gear'** - abandoned, lost or otherwise discarded fishing gear - currently in our ocean, accounting for about 10 per cent of the total plastic waste in the sea.

**Marine debris can be harmful to humans and animals** by causing direct injuries, damaging boat engines, destroying coral reefs, entangling animals or blocking their digestive systems.

Seals and whales, as well as seabirds and turtles often get entangled - they cannot swim and feed themselves properly anymore, or they suffocate. If the items cut into their skin and flesh,

they can also get serious infections, or lose flippers and fins. Litter items are also swallowed because they are mistaken for food, leading to a blockage of the intestinal tract of the animal and consequently causing malnutrition and starvation, resulting frequently in long-lasting suffering and death.

Of all litter types, ghost gears are generally thought to carry the highest risk of entanglement of marine species, and at the same time is a source for secondary micro-plastics in the oceans.

**Micro-plastics**, now prevalent in all the world's oceans, carry an additional risk: research has shown that toxins attach easily to plastics, which therefore concentrate contaminants. If an animal ingests plastic particles then there is the potential for these absorbed chemicals to enter the tissue, thus transporting toxic substances into the marine food chain - including molluscs and fish consumed by humans. High concentrations of such toxins, which include pesticides, heavy metals and PCBs, can have severe health implications for humans and animals alike.

## Actions by the CMS Family

**The CMS Family has made significant contributions to the international efforts to reduce marine debris** with the publication of a comprehensive review covering (i) Knowledge Gaps in Management; (ii) Commercial Marine Vessel Best Practice; and (iii) Public Awareness and Education Campaigns. This provided the basis for Resolution 10.4.

A resolution will be submitted to CMS COP12 outlining actions international organizations, national institutions, regional and local governments and municipalities, the private sector and civil society can take in order to address the problem, including that of 'ghost gear' and micro-plastics.

## Underwater Noise

**Marine wildlife, particularly mammals and fish, depend on sound** for all aspects of their life including reproduction, feeding, predator avoidance, and navigation. Levels of marine noise have doubled in some areas of the world, every decade, for the past 60 years due to human activities such as shipping, use of sonar, coastal and offshore construction, or seismic surveys.

Many CMS-listed species, ranging from whales and dolphins to fish and turtles; from seals and dugongs to Polar bears, and their prey species, struggle with the effects of human-generated noise. Some other species are affected indirectly by noise: sharks, for example, are not affected themselves, but their prey can be negatively impacted.

The direct detrimental impacts of **human-generated noise which these species can suffer are multiple**

**and depend on the nature of noise.**

Continuous noise can include sounds from ships' motors and propellers. The constant din hinders communication between individuals and their ability to navigate, to find food and detect threats, increasing stress levels and compromising fitness.

Impulsive sound is more sudden, such as the ramming of wind farm piles into the sea floor or an explosion triggered to dispose of underwater munitions. This can cause direct injuries to the hearing system of the animals, lead to bruising, organ rupture and death.

**Noise has been shown to be deadly for at least some species of whales**

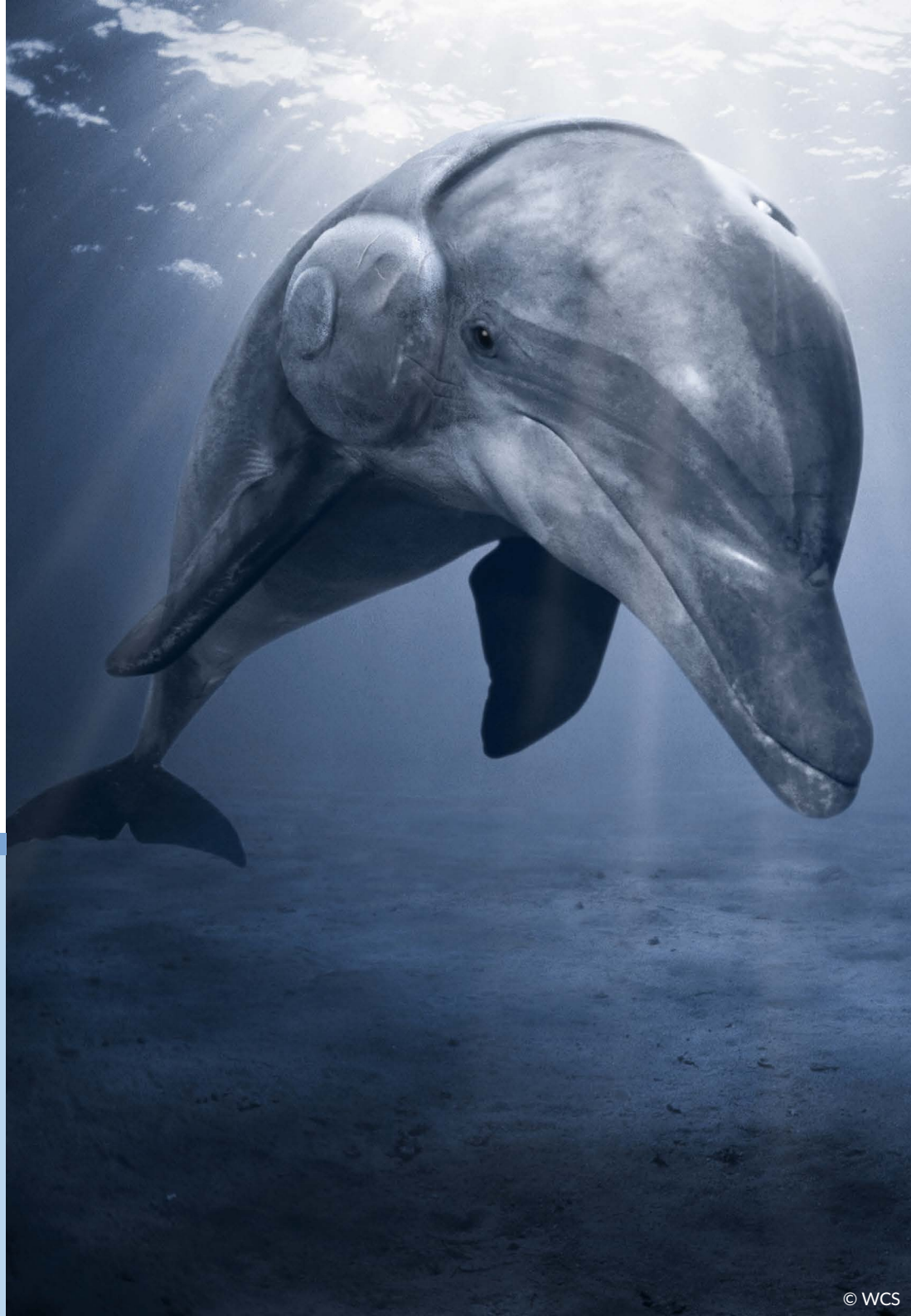
with evidence linking intense military sonars with fatal whale strandings. Reduced fish catch rates of 50-80 per cent near seismic surveys have also been reported in some species affecting fishing activities and communities.

## Actions by the CMS Family

Accordingly, the **CMS Family Guidelines on Environmental Impact Assessments for Marine Noise-generating Activities** were created following an extensive consultation process involving governments, organizations and private sector. These provide guidance on using EIAs to assess the impacts of anthropogenic marine noise on marine migratory

species and their prey. These guidelines provide tailored advice to Parties wishing to employ Best Available Techniques (BAT) and Best Environmental Practice (BEP) to ensure that the least possible harm is caused to marine species.

These guidelines will be presented to the CMS COP12 for adoption.





## Pesticides in Agriculture

Pesticides do not just kill pests. They affect other animals too.

Insecticides and rodenticides are the main pesticides dangerous to birds. Waterfowl and some gamebirds which feed on agricultural foliage are at potential risk of exposure. Passerines may feed on pesticide-treated seeds. Birds in agricultural habitats that prey on insects or scavenge animals that may have been poisoned, are at particular risk.

These substances may be lethal or can cause reduced movement, increased vulnerability to predation and/or affect orientation during migration.

Several of the insecticides of high risk to birds, such as carbofuran, have been removed from the agricultural market in many countries. Others have seen their use restricted, often because of concerns over human health. Recent analyses from the United States indicate that the use of **insecticides that are acutely toxic to birds may have been the most important factor explaining farmland bird declines** over the last decades.

## Actions by the CMS Family

The CMS Family Guidelines to prevent the risk of poisoning of migratory birds which were adopted by COP11 provide specific recommendations to improve the global **governance regulating these substances and to reduce bird exposure to pesticides by adoption of bird-friendly farming practices.**

## Pesticides - Illegal Use as Poison Bait

For many people, the word 'vulture' brings to mind a sinister appearance of these birds, not least due to their behaviour of feasting on animal corpses. Irrespective of their looks, they play a crucial role as biological waste controllers, including by containing diseases associated with decaying animals. These ecosystem services translate into significant economic and health benefits. **Despite their intrinsic value, the populations of most African-Eurasian vultures are rapidly collapsing towards extinction.**

In Africa, the main threat is poisoning. Pesticides are used illegally as poison baits to kill carnivores as a means of protecting both livestock and humans. Unfortunately, vultures too are lured to these baits and become unintentional

victims. Furthermore, in recent years, poachers have been intentionally targeting vultures using similar baiting techniques to hide their illicit activities – birds circling above a kill is often how wardens become aware of poaching.

Incidents where vultures have been targeted because their role as “sentinels” helping the authorities locate the scene of the crime are the largest single contributing factor to the increase in the birds’ deaths as a result of poisoning. **The fates of vultures and elephants go hand in hand: over 2,000 vultures were killed in association with eleven ivory poaching incidents in seven African countries between 2012 and 2014.**

## Actions by the CMS Family

The speed, scale and extent of these declines in vulture populations on the continent are now widely recognized as the '**African Vulture Crisis**' and have catalyzed an international call for action. Over the triennium 2015-2017, the CMS Coordinating Unit for the Conservation of Birds of Prey managed the development of a comprehensive strategic Action Plan covering the whole geographic ranges of 15 species of Old World vultures. The overall goal is to promote concerted, collaborative and coordinated international conservation actions to halt

current population declines in all species and bring their conservation status back to a favourable level. The Plan, which underwent a lengthy and comprehensive consultation process with Range States and key partners, will be presented to the CMS COP12 for adoption.





## Veterinary Drugs - Toxic for Scavenging Animals

Veterinary pharmaceuticals, especially non-steroidal anti-inflammatories (NSAIDs), which are used to treat domestic livestock for inflammation and pain relief, have caused declines of birds feeding on the carcass of treated animals.

The main cause of the **vultures' collapse in South Asia is diclofenac**. Twenty years ago there were over **40 million vultures in India. Now there is less than 1 per cent of that**.

After the discovery of the impact it had on vultures, diclofenac was banned for veterinary use across South Asia. An alternative, meloxicam, has been tested and found to be safe. One of the worst consequences of vulture disappearing has been the explosion in the population of feral dogs resulting in a corresponding increase in human deaths from rabies.

The use of diclofenac in other regions such as Africa and Europe may pose a risk of poisoning to vultures. **In recent years, it has been legally sold in Spain and Italy**. This is a worrying development because of the total number of vultures in Europe, **95 per cent are in Spain**.

## Actions by the CMS Family

The CMS Family Guidelines on bird poisoning provide recommendations, both non-legislative and legislative, to address the risk of veterinary pharmaceuticals to migratory birds including its **replacement with available safe alternatives** and the **development of vulture safe zones in high risk areas for this substance**.

## Unexploded Ordnance – Military Ammunition Dumped at Sea

The conventional **removal of military ammunition by blasting is not only dangerous for humans, but also represents a hazard to cetaceans.** High sound pressure and explosion-related shock waves can lead to severe injury and hearing impairment in marine mammals even at a considerable distance from detonation sites. In addition, the animals and their habitat may be affected by chemicals released due to the explosion or from decaying weapons.

For instance, large quantities of ammunition from World Wars I and II as well as the cold war period are still found

throughout the Baltic, Irish and North Seas. In German waters, an estimated amount of at least **500,000 tons of ammunition is still lying dormant.**

## Actions by the CMS Family

The 8th Meeting of the Parties to Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) passed a resolution on addressing the threat from underwater munitions to cetaceans. The Agreement tries to engage with military officials and environmental agencies responsible for removing unexploded ordnance to make sure that it is done safely for any cetaceans present in the vicinity. As the issue is a global one

with wide implications for the marine environment, far beyond concerns related to cetaceans, **ASCOBANS Parties invited UN Environment to address the issue and take a leading and coordinating role including by creating a joint task force that includes the Regional Seas Conventions,** the CMS Family and other relevant intergovernmental organizations.







## PCBs Contamination

Polychlorinated biphenyls (PCBs) are a group of man-made organic chemicals which due to their properties were used in hundreds of industrial and commercial applications including electrical and hydraulic equipment, plastics and rubber products. Despite being banned or severely restricted in most countries by the 1980s, due to risks to human health and the environment, PCBs are still being released into the environment, intentionally and accidentally and remain for long periods cycling between air, water and soil. **Since 1929 around 2 million tonnes of PCBs have been produced, about 10 per cent of which remain in the environment today.**

The lighter the form of PCB, the further it can be transported from the source of contamination: PCBs have been found

all over the world, including significant amounts in the Arctic and Antarctic, far from any sources.

PCBs can accumulate in the leaves and above-ground parts of plants and food crops. They are also taken up into the bodies of organisms including fish. Unlike water-soluble chemicals, PCBs accumulate in the body over years. This means that PCBs also accumulate via the food chain. **As a result, people and other long-lived and large animals can build up a highly concentrated store of PCBs.**

There is compelling evidence that the metabolisms of whales, dolphins and porpoises are particularly ill-equipped to deal with the large amounts of PCBs that often contaminate their food, producing lethal effects.

## Actions by the CMS Family

In September 2016, the Eight Meeting of the Parties to ASCOBANS (MOP8) passed Resolution 8.7 urging Parties, among other things, to expedite efforts to (i) identify sources of PCBs and (ii) using this and other appropriate knowledge to **avoid the further input of PCBs into the marine environment.** It acknowledges the leading role of other global and

regional processes and treaties, in particular the Stockholm Convention, the Convention on Long-Range Transboundary Air Pollution (CLRTAP), the Protocol on Persistent Organic Pollutants (POPs), and encourages making full use of the provisions and decisions in these frameworks to address this problem.

## Air Pollution – Sustainable Deployment of Renewable Energy Developments

Alongside increasing energy efficiency, developing renewable sources of energy is essential to reduce the amount of air pollutants and greenhouse gas emissions. However, **appropriate planning, assessment and monitoring of renewable energy infrastructure are necessary to prevent adverse effects to wildlife.** All the technologies being developed to exploit renewable sources of energy – wind, solar, tidal, wave and hydropower – can have distinct drawbacks as far as wild animals are concerned, if not sited correctly.

Wind farms and hydroelectric plants, in particular, take their toll on wildlife – birds and bats die as a result of collisions with

wind turbines and the construction of offshore wind farms causes noise harmful to whales and dolphins; dams prevent aquatic animals such as fish, turtles and dolphins from migrating.

Developments should be avoided in the most sensitive locations, e.g. bottlenecks on birds' migration routes. Everywhere else, mitigation measures should be taken and as last resort compensatory actions should be considered. And some mitigation measures bring large gains at little cost– shutting off wind farms when migrating birds are passing has proven to be effective while lost electricity production was negligible (less than 1.0 per cent in some case studies).

## Actions by the CMS Family

Accordingly, the CMS Family sought solutions with satisfactory outcomes for power producers, consumers, conservationists and wildlife by developing comprehensive guidelines on avoiding or mitigating impacts of electricity power grids on migratory birds in the African-Eurasian region and on reconciling renewable Energy Technology Deployment and the conservation of migratory species. The Agreement on the Conservation of Populations of European Bats (EUROBATS) has also issued guidelines for consideration of bats in wind farm projects.

With a view to promoting the use of the guidelines and their further development, CMS COP11 decided to establish a multi-

stakeholder Task Force on Reconciling Selected Energy Sector Developments with Migratory Species Conservation (the **Energy Task Force**). The Task Force works collaboratively with governments, multilateral environmental agreements (MEAs), investors, academic and Non-Governmental Organizations (NGOs) to apply existing guidance and tools through international and national level partnerships, provides recommendations and addresses knowledge gaps.

By reducing impacts of renewable energy technologies on wildlife, CMS Family initiatives are expected to increase the public acceptance of the deployment of these technologies and thus support their further development.





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## Convention on Migratory Species and Its Family

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) is the only global and UN-based intergovernmental organization established exclusively for the conservation and management of terrestrial, aquatic and avian migratory species throughout their range.

CMS acts as a framework Convention by encouraging States to conclude global or regional agreements tailored to the conservation needs of individual or groups of species throughout their range.

The CMS Family refers to the

Convention and the collection of legally-binding Agreements and legally non-binding Memoranda of Understanding (MOUs) that have been concluded under it.

The CMS Family brings together the States through which migratory animals pass and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range. CMS and its daughter agreements determine policy and provide further guidance on specific issues through their Strategic Plans, Action Plans, resolutions, decisions,

and guidelines.

To date, 19 international MoUs and 7 Agreements have been established under the CMS umbrella, for bats, birds, elephants, dolphins and whales, marine turtles and seals, and many others.

Among these, the following treaties significantly contribute to address pollution under their own remits: Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS), Agreement on the Conservation of African-

Eurasian Migratory Waterbirds (AEWA), Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS), Agreement on the Conservation of Populations of European Bats (EUROBATS), Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU).

More information on the CMS Family can be found at:

[www.migratoryspecies.org/en/content/about-cmsfamily](http://www.migratoryspecies.org/en/content/about-cmsfamily)