When oil is spilled at sea, attention immediately focuses on birds, which are often affected when oil is spilled where they are feeding, breeding or migrating. Birds also are most likely to wash up on beaches and, thus, be easily seen. But what about marine mammals—seals, sea lions, sea otters, whales, dolphins, porpoises, polar bears and walrus? The good news is that some of these animals are minimally affected by contact with oil, and for others preventive measures may help reduce the numbers of animals affected. Some facts and myths about how oil affects these fascinating sea creatures follow.

**FACT:**
The true seals, sea lions and walrus are least affected by contact with oil.

These animals have thick blubber layers and have short, dense fur, which they don’t groom and which they molt (shed) annually. The thick blubber layer means they don’t develop hypothermia when coated in oil and, since they don’t groom, they ingest less oil. Also, with their short, dense coats it is less likely that oiling will inhibit their movement. These animals are at some risk if they are caught in areas where the volatilised oils are near the surface as they swim through. But they don’t spend much time at the surface, so the risk is much less than other species. These animals will generally be a low priority for rescue and adults will often be difficult to capture, should response be considered.

**FACT:**
Young true seals, sea lions and walrus are at higher risk than adults until they finish nursing and develop a blubber layer. For the first few months of life, these pups have very little blubber layer, putting them at risk of hypothermia. However, many of the true seal pups (common, ringed, spotted, ribbon, grey, elephant, harp, hooded, etc..) do not go into the water while they are nursing so protecting nursery beaches during a spill may help significantly, provided it is possible to do so without too much disturbance to the nursery group.

**FACT:**
Sea otters and polar bears are the marine mammals most significantly impacted by oil.

Sea otters have almost no blubber, relying on their thick fur coat for insulation and they spend much of their time on the surface of the water, where volatilised fuels cause respiratory damage. This species grooms nearly constantly, greatly increasing the amount of oil they ingest. During the Exxon Valdez spill in 1989, over 1,000 oiled otter carcasses were recovered and, of the 361 animals brought in for cleaning, only 197 survived. Most of the survivors were captured later in the spill, when levels of volatiles were lower. The Exxon Valdez was the first oil spill where rehabilitation was attempted on large numbers of sea otters. Just as survival rates for seabirds have gone up as cleaning and rehabilitation techniques have advanced, future sea otter rehabilitation efforts are likely to be more successful.

Pre-emptive capture may be considered but this species often does not do well in captivity. Hazing or other forms of deterrence might also be an option.

Polar bears not only suffer from the effects of the oil itself, they are also very sensitive to human disturbance during oil spill clean-up activities. Like sea otters, they are reliant on their fur for thermoregulation. Hair loss and skin damage result from exposure to oil, putting them at risk of hypothermia. Polar bears also seem to be particularly sensitive to oil they ingest while grooming. They may become anorexic, dehydrated and sometimes suffer renal failure, which may lead to death. Protecting denning sites and other critical polar bear habitats, as well as developing effective deterrent methods are two options being explored for protecting polar bears from oil.
MYTH:
Adult fur seals (northern, southern, South American, Australian, Guadalupe, etc.) have a blubber layer so they are not at risk during an oil spill.

Unfortunately, the blubber layer on these species is much thinner than that of the true seals, sea lions and walrus. And their long, thick fur can hold a great deal of oil, which they will ingest when they groom. Unfortunately, adult fur seals can be difficult to capture and handle so there is limited possibility of being able to treat them. Prevention through deterrence may be the best option for them.

FACT:
Pre-emptive capture has been successfully used to protect young fur seals from oiling.

Young fur seals are more easily handled than adults. In 1991, following the Sanko Harvest spill in the Archipelago of the Recherche a colony of young fur seals became oiled as the gently sloping beach they needed to use to get in and out of the water was affected. The fur seals were washed on site and held in pens until the beach was safe to use. Taking this a step further, during the Rena spill in 2011, some pups were pre-emptively captured and prevented from being oiled.

MYTH:
Cetaceans (whales, dolphins and porpoises) avoid oil spills.

This myth grew from a couple of very limited studies of captive animals. In the wild, whales, dolphins and porpoises generally do not avoid oil. But measuring the impact of oil on these species is difficult, as they spend most of their time offshore and underwater. There are some reports coming out of the Deepwater Horizon incident regarding the impact of the oil spill on marine mammals, including one survey which reported 5 sperm whales (listed as vulnerable on the IUCN Red List of Threatened Species) of which, at least one was confirmed to be covered in oil sheen.

It has also been shown that Orca (killer whales) are unlikely to detect and avoid oil. Whether there are species of cetaceans who do avoid oil is not known. One promising preventive measure may work for some dolphins. In Cape Cod Bay, one of the three top ‘hot spots’ for mass strandings of dolphins and whales, ‘pingers’, small noise making devices originally designed to keep marine mammals out of fish farms, have been successfully used to keep dolphins from coming ashore. The response does vary from species to species but it offers one more possible deterrent. Preventing these animals from coming in contact with oil will always be the best option.

FACT:
Long term impacts of oil spills on cetaceans are now being studied.

In Alaska, some populations of Orca from the area of the 1989 Exxon Valdez spill are still not reproducing at pre-spill levels. Whether this is from actual contact with oil during the spill or whether they are being affected by contaminated food sources is not yet known. Understanding the reasons why some populations are recovering, but not others, will take time and further research.

In the Gulf of Mexico, one year after the Deepwater Horizon spill, dolphins captured in a bay in Louisiana were found to be underweight, anemic and some had lung and liver disease, along with low levels of hormones involved in stress response, metabolism and immune function. Longer term monitoring of animals from this area may further our understanding of how oil impacts cetaceans.

MYTH:
All dead marine mammals found covered in oil were killed by the spill.

In reality it can be very hard to determine whether the oil killed these animals, particularly if they have been dead for more than a day or two, or whether the carcasses of already dead animals became covered in oil when drifting through the spill zone. Full post mortem examinations help to better determine cause of death but only if the carcasses are fresh. Collecting carcasses during spill response is, therefore, an important part of an accurate oiled wildlife impact assessment.