Persistent organic pollutants still threatening apex marine life, researchers find

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Credit: Tiago Fioreze / Wikipedia

(Phys.org)—A pair of researchers has found evidence that suggests that large marine animals are still being threatened by persistent organic pollutants (POPs) despite international regulations forbidding their use. In their paper published in the journal *Science*, Paul Jepson with the Zoological Society of London and Robin Law with the Centre for Environment, Fisheries and Aquaculture Science, both in the U.K.

outline which animals are most at risk and from which types of pollutants. They also make some suggestions regarding ways to reduce the problem.

Over the past half century, environmental scientists have identified several types of POPs that have proven detrimental to wildlife—PCBs, DDT, etc., and governments have then taken action to stop their use. But, Jepson and Law claim, because of the long persistence of the chemicals and because some countries have not banned the substances, many of the animals that live at the top of the food chain are still at serious risk.

POPs are dangerous to marine animals because they still exist in products that were made decades ago, in landfills and in small bits of material that exist in the ocean. Fish eat small amounts of material that have POPs in it and they are then in turn eaten by a bigger fish, which are in turn eaten perhaps by a shark or killer whale. Those POPs then build up in those larger animals because of the huge amounts of fish they consume and because their bodies do not get rid of them. Some, such as Orcas inadvertently feed POPs to their offspring via their milk.

Serious study of the impact of POPs on large marine animals has not been conducted, the research pair point out, and because of that it is not clear how much harm they are causing, though there is one impact that is believed to be common in all animals that ingest POPs—they become less fertile. Jepson and Law note that Orcas, the animal that consistently has the most POPs in its body, have been declining in numbers for many years. It is possible, they suggest, that many are no longer able to reproduce, especially those that live close to shorelines high in POP concentrations, such as the US and European coasts. They suggest that studies be conducted to learn the true impact of POPs on large marine animals, to learn the source of current POP emissions into the seas and that mitigation policies be put into place to reduce the amounts of the

chemicals that continue to make their way into the world's oceans.

More information: P. D. Jepson et al. Persistent pollutants, persistent threats, *Science* (2016). DOI: 10.1126/science.aaf9075