

Study links fetal and newborn dolphin deaths to Deepwater Horizon oil spill

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Researchers investigated the deaths of perinatal dolphins, like this one, found in regions affected by the 2010 Deepwater Horizon oil spill. Credit: Louisiana Department of Wildlife and Fisheries

Scientists have finalized a four-year study of newborn and fetal dolphins

found stranded on beaches in the northern Gulf of Mexico between 2010 and 2013. Their study, reported in the journal *Diseases of Aquatic Organisms*, identified substantial differences between fetal and newborn dolphins found stranded inside and outside the areas affected by the 2010 Deepwater Horizon oil spill.

The study team evaluated 69 perinatal common bottlenose [dolphins](#) in Alabama, Louisiana and Mississippi, the areas most affected by the spill, and 26 others found in areas unaffected by the spill. The work was conducted as part of an effort to investigate an "unusual mortality event" in the Gulf primarily involving bottlenose dolphins, beginning in early 2010 and continuing into 2014.

Scientists saw higher numbers of stranded perinatal dolphins in the spill zone in 2011 than in other years, particularly in Mississippi and Alabama, the researchers report. The young dolphins, which died in the womb or shortly after birth, "were significantly smaller than those that stranded during previous years and in other geographic locations," they wrote.

Bottlenose dolphin gestation takes about 380 days, so perinatal dolphins that died in the early months of 2011 could have been exposed in the womb to petroleum products released the previous year, said University of Illinois veterinary diagnostic laboratory professor Kathleen Colegrove, who led the study. Colegrove works in the Chicago-based Zoological Pathology Program at the U. of I.

"Dolphin dams losing fetuses in 2011 would have been in the earlier stages of pregnancy in 2010 during the oil spill," she said.

The researchers report that 88 percent of the perinatal dolphins found in the spill zone had lung abnormalities, including partially or completely collapsed lungs. That and their small size suggest that they died in the

womb or very soon after birth—before their lungs had a chance to fully inflate. Only 15 percent of those found in areas unaffected by the spill had this lung abnormality, the researchers said.

The team also found that the spill-zone dolphins were "particularly susceptible to late-term pregnancy failures, signs of fetal distress and development of in utero infections including *brucellosis*," a bacterial infection that can affect the brain, lungs, bones and reproductive function. Extensive testing found no evidence that an unusual or highly pathogenic *Brucella* strain was involved.

"These findings support that pregnant dolphins experienced significant health abnormalities that contributed to increased fetal deaths or deaths of dolphin neonates shortly after birth," Colegrove said.

A previous study by many of the same researchers revealed that nonperinatal [bottlenose dolphins](#) stranded in the spill zone after the spill were much more likely than other stranded dolphins to have severe lung and adrenal gland damage "consistent with petroleum product exposure."

"These diseases in pregnant dolphins likely led to reproductive losses," Colegrove said.

"Our new findings add to the mounting evidence from peer-reviewed studies that exposure to petroleum compounds following the Deepwater Horizon oil spill negatively impacted the reproductive health of dolphin populations living in the oil [spill](#) footprint in the northern Gulf of Mexico," said Dr. Teri Rowles, a veterinarian with the National Oceanic and Atmospheric Administration's Marine Mammal Health and Stranding Response Program and a co-author on the study.

More information: KM Colegrove et al. Fetal distress and in utero pneumonia in perinatal dolphins during the Northern Gulf of Mexico

unusual mortality event, *Diseases of Aquatic Organisms* (2016). DOI: [10.3354/dao02969](https://doi.org/10.3354/dao02969)

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