Effects of Endocrine Disrupting Compounds on Embryonic Growth

Van Orman, Summer

Diethyl Phthalate (DEP) is a commonly found endocrine disruptor found in the ocean. DEP comes from plastics that have been floating in the ocean and releasing certain pollutants, including but not limited to Diethyl Phthalate. One of the suspected problems with an increase of DEP in the world's oceans is that during development, organisms that are growing in the zygotic stage will suffer from mutations or possibly never even divide. The hypothesis then, is that with levels even as small as 100 ppm (parts per million) will hinder the natural development of these embryos. This experiment exposed Sea Urchin embryos to varying levels of DEP (0 ppm, 1 ppm, 25 ppm, 50 ppm, 75 ppm, and 100 ppm) and studied the various effects of DEP on the embryos. The results of this experiment showed that with an increased exposure level of DEP correlated to a higher probability of mutations, increased mitosis duration, and an increased rate of cellular lysis in the Sea Urchin embryos. What this means is that DEP should not be present in the world's oceans or there will be detrimental effects to the population of conceivably numerous oceanic species.