Are Common Pills and Plastics Feminizing Fish, Endangering People?

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Synthetic and natural hormones from plastics, pesticides and even common prescription drugs are seeping into rivers and streams and having unintended consequences on wildlife, causing some male fish to become feminized and lay eggs. In fact, a recent report found that one third of small mouth bass were feminized in nine major U.S. river basins, and almost all of the rivers and streams tested in the United States contained some hormonally active chemicals.

The long-term consequences of hormones and endocrine disruptors in the environment will be the focus of the Tenth International Symposium on Environment and Hormones (E.hormone 2009), a four-day conference starting Oct. 21 at Tulane University that will bring together leading experts from around the world to talk about the latest research in this emerging field.

"It is one of the hottest topics in environmental biology right now," says John McLachlan, director of the Tulane/Xavier Center for Bioenvironmental Research, which is hosting the conference. "The biological activity of these compounds both in terms of other species and, potentially, ourselves is something that scientists are becoming more and more aware of through research."

Almost 30 years ago, the National Institute of Environmental Health Sciences organized the first symposium on estrogens in the environment at a time when researchers were just becoming aware of the potential environmental impacts of synthetic hormones caused by industrial byproducts, pesticides and other chemicals introduced to the environment. Now scientists are looking at the proliferation of prescription drugs like antidepressants, contraceptives and other medications that are ending up in wastewater after being taken by people. Most municipal water treatment systems don"t have the ability to neutralize pharmaceutical compounds in wastewater so they end up in rivers and streams, McLachlan says.

"They all end up in different places in the environment," he says. "What do they do to the wildlife that absorb them and, more importantly, what do they do to our water sources?"

A recent study published in the journal Aquatic Toxicology found feminized male fish in almost a third of 111 sampling sites in nine major U.S. river basins. Scientists are studying whether endocrine disruptors are responsible. Tyron Hayes, a leading expert in intersexed amphibians, will be speaking at the conference about his research on the effects of endocrine disruptors on wildlife.

The conference also discusses how hormones affect the body and endocrine system and how they may play a role in diseases like breast cancer. There will be several sessions about DES (diethylstilbestrol), a synthetic form of estrogen linked to increased cancer risks. The conference will also feature a session by "green chemistry" expert Terry Collins, who is leading a campaign to get companies to anticipate the future biological activity of the chemicals they design to make sure they don"t cause problems as they break down. There is also a session about Bisphenol-A Ã¢â?¬“ a common chemical in plastic food containers and bottles Ã¢â?¬“ and its potential links to Type II diabetes and obesity.

Registration for the conference, which is scheduled for Oct. 21-24 at the Pere Marquette Hotel in downtown New Orleans, costs $450 for members of the public or $300 for students. Day passes are available for $200 or $125 for faculty members of Tulane or Xavier universities. Members of the public can attend one individual session of the conference at no charge, but they must register if they are attending multiple sessions.

More information, including a full program schedule, is available online at http://e.hormone.tulane.edu/eh2009.html