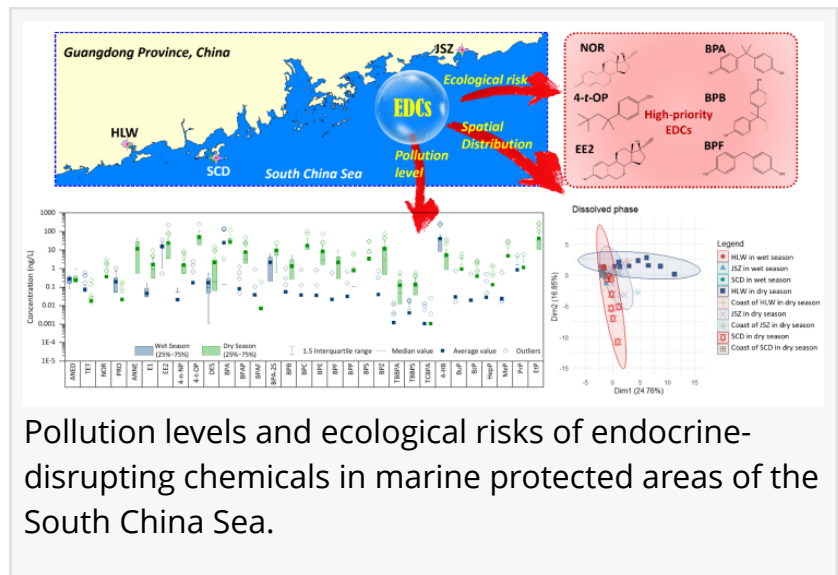


Endocrine disruptors pose ecological risks to marine protected areas

FAYETTEVILLE, GA, UNITED STATES,

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EINPresswire.com/ -- This study delved into the pollution levels and spatiotemporal distribution characteristics of 31 endocrine disrupting chemicals in three marine protected areas and the adjacent coastal areas, evaluating their partitioning patterns, estrogenic potency, and potential ecological risks they posed.



Endocrine-disrupting chemicals (EDCs)

encompass a class of substances capable of interfering with the endocrine system, thereby inducing diseases and functional irregularities in organisms. These substances are widely used in commercial and personal care products and have been frequently found in the aquatic environment worldwide.

As a pivotal protected area, the National Aquatic Germplasm Resources Reserve (NAGRR) in China designates special protection and management areas for specific tidal flats and related lands, with a focus on key growth and reproduction regions such as spawning. The Guangdong–Hong Kong–Macao Greater Bay Area is a highly developed and industrially active region in China, harboring a populace exceeding 87 million and a GDP surpassing RMB14 trillion. Notably, being adjacent to the South China Sea and centering around the Pearl River Estuary, this area encompasses three important marine NAGRRs. To address the current research gaps regarding the EDCs in these NAGRRs, a study published in the KeAi journal [Environmental Chemistry and Ecotoxicology](#), a group of researchers from China examined the pollution levels of 31 common EDCs within these protected areas and their adjacent coastal areas.

The team found that EDC pollution levels were notably higher during the dry season compared to the wet season, with notable spatial variances observed among different regions. Environmental estrogens was the primary EDCs of concern, potentially disrupting the endocrine systems of aquatic organisms within these regions. Norgestrel, 17 α -ethinylestradiol, 4-tert-

octylphenol, bisphenol A, bisphenol B, and bisphenol F were all identified as pollutants.

The researchers proposed that initial efforts should be directed towards reducing the release of EDCs into the environment of marine protected areas at the source. This can be achieved through enhancements in sewage treatment plant processes, such as implementing more efficient secondary treatments like aerobic bioreactors. Further, chemical industry should be encouraged and incentivized to produce more environmentally friendly substitutes for replacing harmful EDCs in future. Research efforts to understand the toxicological impacts on benthic marine organisms exposed to these EDCs should also be stepped up.

Finally, at the management and policy level, marine NAGRRs need to bolster monitoring and early warning systems for priority EDCs within the region. When selecting sites for new NAGRR establishments, the authors note that the criteria for evaluating site suitability should incorporate indicators of environmental EDCs and distances from sewage treatment plants and urbanized coastal cities.

References

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s and plants.

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