



Reducing Chemical Footprints to Prevent Water Pollution and Improve Human and Environmental Health

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South Platte River Urban Waters Partnership Meeting
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Institute for Environmental Solutions (IES)

- IES delivers scientific solutions to improve human and environmental health
- We engage a broad spectrum of participants in examining complex environmental problems on a project basis



Meeting Agenda

- 1:00 - 1:30 pm Reducing Chemical Footprints to Prevent Water Pollution and Improve Human and Environmental Health
- 1:30 - 2:00 pm Workshop Activities
- 2:00 - 2:15 pm Questions and Feedback

Contaminants of Emerging Concern (CECs)

- CECs are a variety of different chemicals found in household and personal care products
- Many CECs are known endocrine disruptors
- These chemicals are of emerging concern due to risks they pose on human health and the environment, and are not treated for in wastewater treatment plants



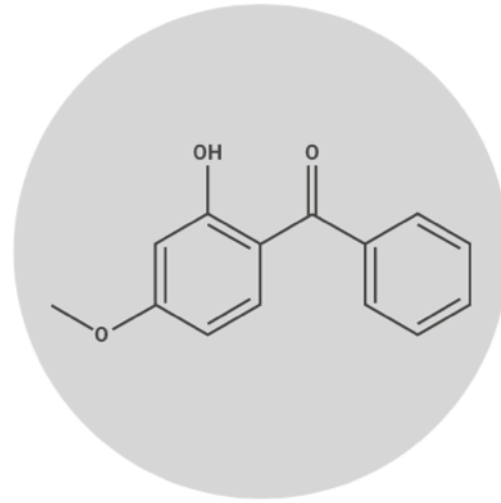
Common CECs

- Alkylphenol surfactants (nonylphenol and octylphenol) from cleaning products
- BHA (Butylated hydroxyanisole) from processed foods
- BPA (Bisphenol A) from plastic containers
- DEET (Diethylmetatouluamide) from bug repellent
- Parabens from personal care and cosmetic products
- Oxybenzone from sunscreen
- Triclosan from antimicrobial personal care products

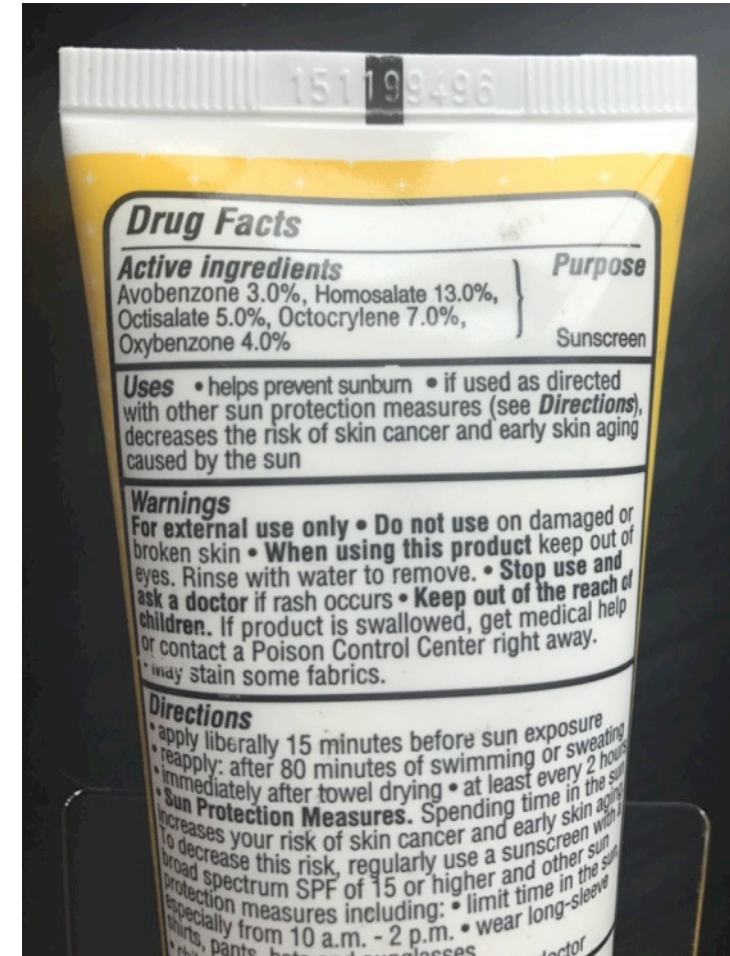


Oxybenzone

- Disrupts the endocrine system, bioaccumulates, and harms coral reefs
- Alternative mineral sunscreens contain titanium dioxide or zinc oxide
- Skin coverage and protective clothing



Oxybenzone



Reduce Your Chemical Footprint Video



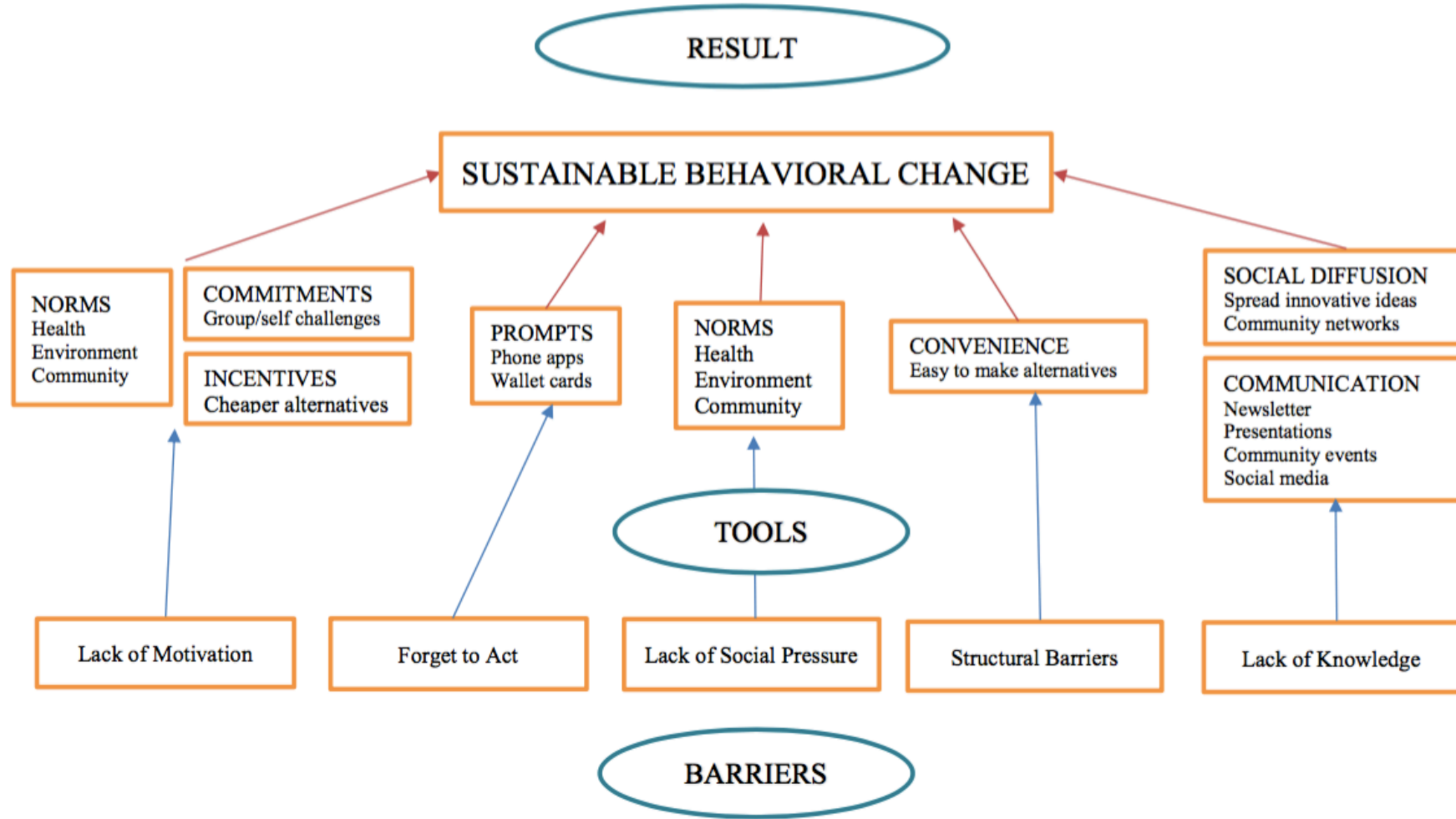
<https://youtu.be/Vy6FvWSOobs>

IES Chemical Footprint Project

- Prevent water pollution and protect human and environmental health by reducing household and commercial footprints
- Hypothesis is that prevention of trace contaminants in water is cheaper, more effective, and more sustainable than treatment
- Community engagement to change behaviors



Community-Based Social Marketing



Overcome Barriers to Change

- Highlight benefits to incentivize change
- Create prompts and emphasize social norms to trigger action
- Obtain commitments
- Use social diffusion to speed up adoption



Community Engagement to Reduce Chemical Footprints

Learn about the community

- Surveys
- Focus groups



Demonstrate to communities how to reduce chemical footprints

- Workshops
- Public events



School Workshops

- IES is partnering with Fort Logan Northgate public school in Sheridan to develop and implement the Blue Crew Water Stewards program
- A series of three workshops focused on educating students on the water cycle, CECs, and reducing chemical footprints



Blue Crew Water Stewards

Workshop 1: What Are CECs?

- Teach students about CECs, how they affect the environment and us, and how regulated and unregulated pollutants can travel throughout the water cycle.
- Activity demonstrating how pollutants travel through the water cycle



Blue Crew Water Stewards

Workshop 2: Where Are CECs Found?

- Teach students about the pervasiveness of CECs
- Demonstrate how to reduce personal exposure
- Interactive activities that teach
 - Label reading
 - Choosing alternative strategies

FOUND IN:



Sunscreen



Beauty Creams



Skin Lotions



Lipstick



Bubble Bath



Shampoo



Hair Dye



Hair Spray



Pharmaceuticals



Agricultural Chemicals



Insecticides



Adhesive Formulations

Blue Crew Water Stewards

Workshop 3: Reduce Your Chemical Footprint!

Teach students how to reduce chemical footprints

- Make their own CEC-free products
- Make commitments
- Create action plans
- Become a Blue Crew Water Steward



Evaluation and Next Steps

- Program evaluation
 - Pre- and-post workshop questionnaires
 - Feedback from students and teachers
- Next steps
 - Evaluate effectiveness and report
 - Recommend program improvements and revisions
 - Expand to more classrooms



IES Resources

- IES website (www.i4es.org) and our social media lists additional tips on how to easily reduce your chemical footprint
 - Use less
 - Read labels
 - Make your own products
- Search “Institute for Environmental Solutions” on YouTube for more DIY product-making videos



<https://www.i4es.org/emerging-contaminants/>

Reduce Your Chemical Footprint

Harmful Chemical Activity

Instructions

- Each card contains a harmful chemical and where it is found
- Discuss in your groups alternatives to using products with this CEC
- Next, go to the prop box to find product alternatives
- Note: There may be more than one alternative

Reduce Your Chemical Footprint

DIY Product Making

- All-purpose cleaning spray
 - 1 part white vinegar
 - 1 part water
 - Few drops essential oil (optional)
- Hand sanitizer
 - 2 parts rubbing alcohol or ethanol
 - 1 part aloe vera gel or liquid
 - Few drops essential oil (optional)



Questions & Feedback

- Thank you to all South Platte River Urban Waters Partnership members for protecting our South Platte River!
- We appreciate your questions or feedback



Great Blue Heron in the South Platte River, Littleton, CO