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State of the Nation's River 2009: Emerging Contaminants in the Potomac

Two leading culprits identified as potential endocrine disruptors, which could be contributing to the intersex fish phenomenon, include pharmaceutical drugs and personal care products. Widely prescribed drugs can often contain contaminating residues such as caffeine, ibuprofen and naproxen. Personal care products such as soaps, lotions, cosmetics and perfumes contain phthalates, a known endocrine disruptor used to produce fragrance. Federal regulatory agencies have yet to develop consistent, comprehensive guidelines regulating the proper disposal of these items. Although some guidelines do exist, they are often unclear and contradictory. Moreover, many disposal methods deemed "safer" still produce secondary pollution. Although landfills are acknowledged to be slightly safer, they still provide a stage for a concentrated collection of pharmaceuticals. The potential for harmful residues to get washed away in storm events or leached into the soil, contaminating groundwater reserves, is very high. Another disposal method, incineration, was once very popular in the health care and municipal waste systems. Although it is considered a minor secondary strategy by some, challenges concerning air pollution hazards still exist. As researchers, scientists, manufacturers and decision makers continue to work towards a comprehensive solution, mindful disposal practices are nonetheless critical.

What you can do to mitigate pollution in our drinking water:

1. **NEVER flush** unneeded or expired medications down a toilet or drain, especially if you use a septic system.

2. **Keep it contained**: Unused personal care products are best disposed of by landfilling if left in the original container. If medications must be thrown away, leave them in their original container to reduce seepage at the landfill.

3. **Remove identifying information**, or package medications in an obscure container such as an empty margarine tub or non-transparent bag, and place it in the trash.

4. **Go natural**: Consider using products with biodegradable ingredients which are less likely to harm the environment. Choose products containing ingredients more prone to biodegrading like vinegar, lemon juice, or baking soda.

5. **Avoid unnecessary ingredients** such as fragrances, or those labeled "antimicrobial" in personal care products.

6. **Locate a take-back program**: Ask pharmacies in your community if they take back unneeded or expired medications. Inquire about community take-back programs at local government sites and online. If none exist, implement your own using resources such as Teleosis Institute's Green Pharmacy Program (www.teleosis.org/gpp-program.php), or the SMARxT Disposal public awareness campaign (www.smarxtdisposal.net) to help you get started.

7. **Alter medications** before placing them in the trash. Opinions on altering medications vary — some believe the medications should simply be made unpalatable or undesirable to prevent accidental ingestion, while others believe they should be made completely unusable. Add kitty litter to liquid medications, glue or a small amount of water to pills, a small amount of disinfectant to any medication, or salt, flour or a powdered spice like mustard or turmeric to liquid medications.

8. **Use personal care products sparingly**, completely, and according to label recommendations.

9. **Recycle responsibly:** See if your state runs a program to provide low-income patients with leftover pharmaceuticals. Rules and regulations vary according to state so reference the laws in your area with the help of organizations such as the National Conference of State Legislatures (www.ncsl.org).

10. **Call your local government** and ask what they can do to help. Suggest a community campaign to integrate some of the above methods into your own neighborhood.