Subject: Health, Environmental Health, Science, Chemistry, Biology
Grade Levels: Middle School & UP

# Take this personally

## (How to scrub toxic chemicals from personal care products!)

**Objectives -** To investigate, prepare, take action, reflect and demonstrate that personal choices can have huge positive consequences.

## Students will be able to:

- Learn the FDA's and the EPA's role in ensuring PCP "safety"
- Investigate potentially harmful ingredients used in PCPs
- Determine if any personal care products they use on a daily basis contain harmful ingredients
- Learn about scientific research that shows PPCPs can cause damage to humans, wildlife and the environment
- Design a consumer health/environmental awareness brochure or poster about potential harmful effects of toxic ingredients in PCPs

## Materials

PA Sea Grant/Erie Times-NIE publications

- 9/ 23/14 – Something's fishy – Marine life shows signs of troubled ecosystems
- 9/30/14 – Take this personally – You can act to scrub chemicals from personal care products

## *Other Resources*

http://www.paseagrant.org/topics/toxins/

- Dose of Reality
- What you can't see – Hidden chemicals in your water
- Say Good riddance – Progress in eliminating PPCPs from the environment

Student worksheets

Story of Cosmetics – www.storyofcosmetics.org

Environmental Working Group Skin Deep Database – www.ewg.org/skindeep/

EWG Skin Deep Free Mobile App – www.ewg.org/skindeep/app/

## Standards

Apply the elements of scientific inquiry to solve problems.
Apply knowledge and understanding about the nature of scientific and technological knowledge.
Apply process knowledge and organize scientific phenomena in varied ways.
Explain concepts about the structure and properties of matter.
Explain sources and uses of earth resources.

This lesson was created by Anna McCartney for Pennsylvania Sea Grant 10/1/14

**Science Skills and Processes**
Defend a position on a scientific issue and take into account the different types of risks and benefits in formulating a plan of action

- The student will investigate an environmental, health and social issue.
- The student will apply skills, processes, and concepts of biology, **chemistry**, physics, and earth/space science to societal issues.
- The student will apply chemistry to the concepts of biology, earth/space science, and environmental science.

**Environmental Science:** Students will use scientific skills and processes to explain the interactions of environmental factors and analyze their impact from a local to global perspective
**Health:** Students will evaluate the short and long term consequences of safe, risky, and harmful behaviors to determine and practice ways to avoid and reduce threatening situations and harmful relationships. Analyze individual responsibility as a factor in enhancing the health of self and others as well as wildlife to identify and practice behaviors for health promotion

**Optional Chemistry Connection:** *Demonstrate safety when conducting an investigation.* The student will recognize safe laboratory procedures and *demonstrate safe handling of the chemicals and materials of science.*

## Evaluation

- Students will be given a check plus, check or check minus for completion of worksheets.
- Students will be graded on their PCP safety brochure or poster based on the rubrics
- Students will retake the "How much do you know about PCP safety after the completion of this lesson to see how much they learned

# Who's Trashing the Ocean and Waterways?
# Be a Data Detective and then solve the problem

**Have any ideas!**
This is a problem you can help solve. We already know the oceans and waterways need our help. Investigating the PPCP issue reveals the exact action needed by you and guides you in creating a brochure or poster to share what you learn to encourage others to take action.

## Overview

Although the FDA has overall responsibility for ensuring that the cosmetics and personal care products (PCPs) we use on a regular basis are safe, they have very few restrictions or guidelines that insure their safety. In fact, they don't even approve products before they go to market. Wastewater treatment plants or septic systems do not remove many of these chemicals before they enter surface or groundwater. They are adding up in the environment and wildlife is showing signs that these chemicals are doing harm. The EPA does not regulate these toxins.

In this lesson, students will learn about PCP safety issues and concerns. Through readings, guided Internet research, homework, class discussion, the video "Story of Cosmetics" and other activities they will learn that the products they use regularly may actually contain ingredients that can cause human and environmental health problems. Students will have an opportunity to create a PCP safety brochure or

poster designed for the average consumer, to create awareness about PCP safety concerns. The goal is to get students to replace harmful products with safe ones.

## Procedures

**Teacher Prerequisites:** Spend some time familiarizing yourself with the Internet resources listed, especially the two searchable databases that the students will be using for their research and preview the Story of Cosmetics. About a month before, start saving empty samples of personal care products and ask your family, friends and colleagues to do the same. This will insure you have enough for all your students to use for their Internet searches.

Make enough photocopies of the student worksheets and quiz. **Assign the PCP Student Use Worksheet for homework prior to starting this lesson.**

On day one, students will take a brief quiz to determine their pre-existing knowledge about PCP safety issues.

Each student will focus on personal care products that they use regularly. During Days 2 and 3, students will conduct research and share information on their products to determine if there are any ingredients in these products that are considered to be of moderate or high concern. They will look for safe replacements and discuss what they can do to keep PCPs out of the environment. Finally, as a culminating activity, students will individually create a PCP safety health/environment brochure targeted for the average consumer to raise awareness of PCP safety issues.

Students should have some familiarity with how to conduct effective searches on the Internet.

**Day 1: Daily Challenge Question:** What are the personal care products you use on a daily basis and who ensures that they are safe to use or that they are safe for the environment?

45-minute class period

Have students take the pre-assessment quiz on PCPs to test their prior knowledge.

Class discussion to review the answers to the quiz will help students gain a solid understanding of the issues surrounding PCP safety and the FDA's role in product safety and the EPA's role in keeping PCPs out of the environment.

Ask students: *What are PCPs?*
Some might think the term is limited to makeup primarily used by females.

Define PCPs: *Products intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance.*

Over the next several days, they will be investigating the safety of common personal care products they use every day and if any contain ingredients that may possibly be harmful to their health or the environment.

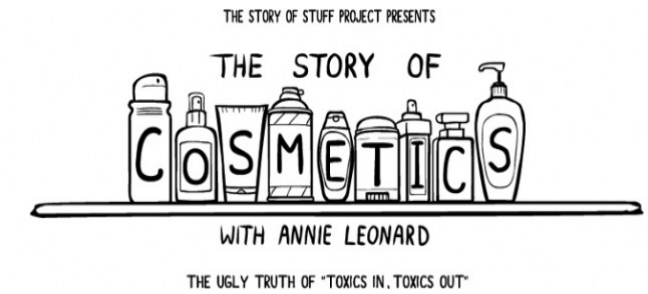
Read aloud or have students read the PA Sea Grant/Erie Times NIE pages on PPCPs to give students examples of commonly used products that may potentially be harmful to human health or wildlife.

**Activity - Brainstorm**

- Share samples of PCPs so that students can see all the different categories
- Discuss the PCP student Use worksheet students did for homework prior to this lesson
- Give students about 10 minutes to share the products that they use regularly (at least three times per week).

## Day 2

Lead a discussion about the cosmetics that students use regularly, safety issues and concerns, and the role of FDA. Have a brief class discussion about some of the commonly used personal care products in order to show a variety of products and quantities used on a daily basis.




Watch The Story of Cosmetics
www.storyofcosmetics.org with your students.

1. Segue into discussion about safety.
    - *Do students feel as if they products they use are safe?*
    - *What do they know about PCP safety?* Maybe some students have had allergic reactions, or have heard about articles that have linked PCP to cancer or other health problems. Discuss all these things as a class.
    - *What do students know about the FDA?*
2. Give students about 5 minutes to share their findings of the Toxic 15 the worksheet
3. Revisit Question #1 from the cosmetics quiz. "Does the FDA guarantee PCP safety?" Discuss the FDA's role and mention that the agency only oversees the prohibition of a few ingredients. Also note to students that these ingredients were once included in products, and it wasn't until recently (2002) that they were prohibited. Also mention that there are still many questionable ingredients being used in PCPs.
4. Explain that although the FDA has overall responsibility for the "safety and labeling" of cosmetics, there is truly very little regulation within the industry.
5. Discuss why cosmetic companies self-regulating their own product safety may be of consumer concern. Mention that PA Sea Grant, Fresh Face Forward and advocacy groups such as Safe Cosmetics (safecosmetics.org) and the Environmental Working Group (EWG) are working to help create consumer awareness of PPCP safety issues.

### Post Viewing Activities

How will students utilize the information they gathered while viewing the video? Students will have gained an awareness and basic understanding of PCP safety. This knowledge will help them with their homework assignment and move into the next day's activity.

**Wrap Up:** Tell students that there are several ingredients currently being used in cosmetic products that are of high concern but still have not been prohibited from being used. Students will take the next few days to conduct research to find out if any products they use contain these "high priority" or "high concern" ingredients and the reasons for an ingredient being high concern (i.e., potential health hazard).

**Assign the Fresh Face Forward Toxic 15 worksheet for homework.** Tell students they will be conducting research to determine if any products that they use on a daily basis contain ingredients that are considered to be of moderate to high concern by looking for the toxic 15 in the products they use regularly.

Students will determine if any of the PCPs they use regularly contain chemicals of moderate to high concern.
Students will fill in their worksheets as they look for the Toxic 15 chemicals in products they use.
Students will have gained a greater awareness of both the products they use as well as any potential health/environmental effects associated with those products.

## Days 3: How safe are my products?

**Daily Challenge Question:** Are there any ingredients in the products that I use regularly that are of moderate-to-high concern? What are the potential health and environmental effects of these "high concern" ingredients or products?

45-minute class

Establish student pairs ahead of time. Ideally, pair students of different genders so that their cosmetic products offer a good mix of different types of products. Arrange for access to a computer lab for student research.

### Directions:

Have students share what they found on their labels and ingredients on each of their products with a partner.

Discuss answers to homework questions.

Hand out Safer Alternatives worksheet and have students work with their partner to complete this activity.

**PCP Safe Alternatives Student Worksheet Day 3**

**Teacher Presentation & Motivation:**

**Optional:** Depending upon your students' skill level with conducting Internet searches, you may want to give a quick overview of the two searchable databases as a class, to make sure students know how to use the sites efficiently.

http://householdproducts.nlm.nih.gov/index.htm and http://www.ewg.org/reports/skindeep2/index.php

Use the product you find as an example.

Search more than 69,000 products at Environmental Working Group Skin Deep here: http://www.ewg.org/skindeep/

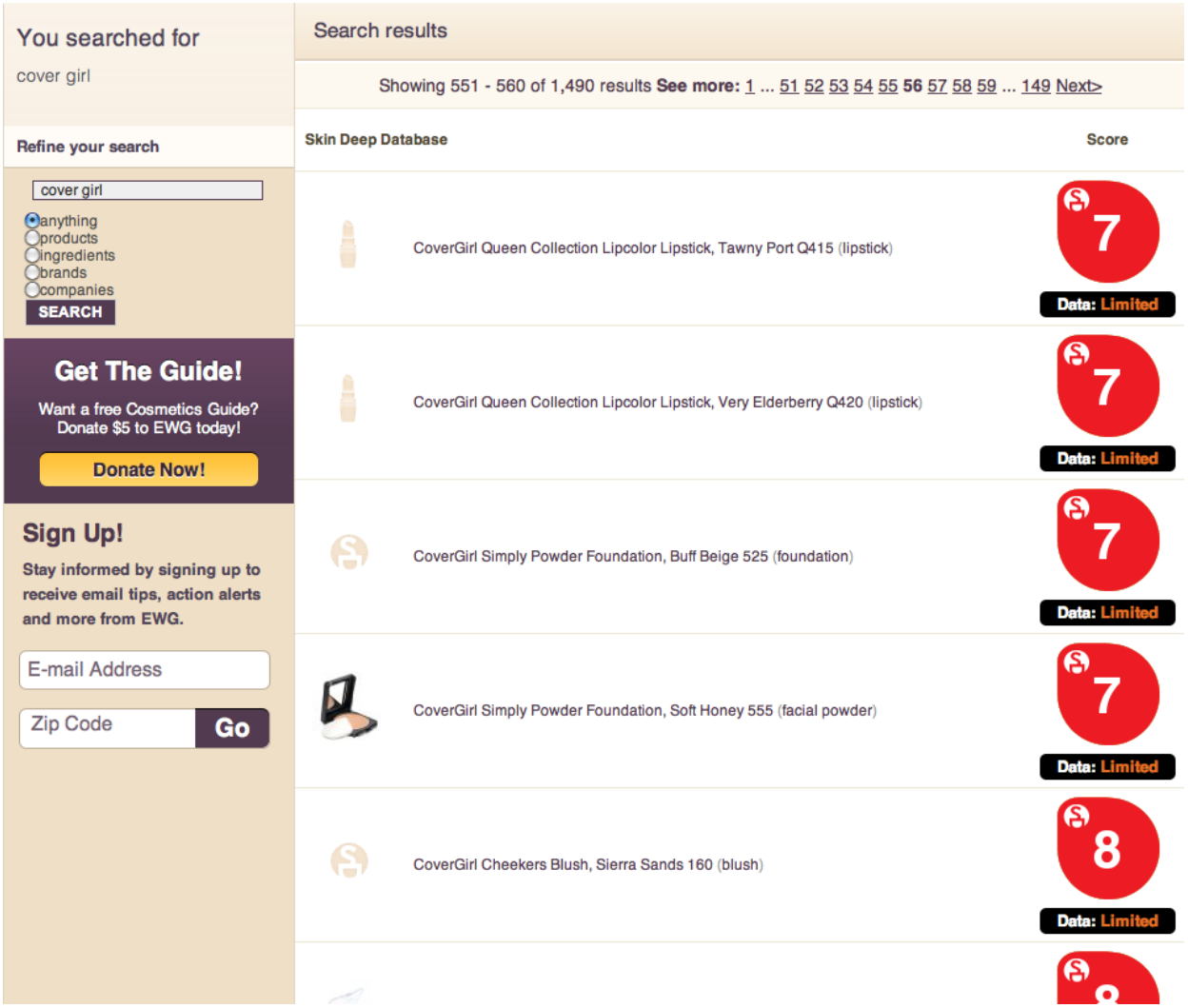
- Browse by product type, example toothpaste lowest to highest safety concern
- Look for alternatives to products you can use that don't have the toxic 15 or are scored 0-2.

When you find a product with low concern, click on the link. You will then find a more detailed view of the product. Have students make a list of products they can use to replace any of their products that contain toxic chemicals on the worksheet provided.

Students will follow the steps outlined on their student worksheet, using the websites provided, to conduct research on specific products they use, as well as ingredients in those products.

The number of products and ingredients that students investigate will depend upon how quickly they become acclimated to the research databases. For two days worth of research, students should be able to look up a minimum of 20 ingredients.

**Sample of search for cover girl products:**




On day 4 have students wrap up about 15 minutes before the class ends.

Discuss effects of PPCPs on wildlife and the environment. Why doesn't the Clean Water Act or Safe Drinking Water Act keep these chemicals out of streams, rivers, groundwater and lakes used for drinking water? Discuss the reasons and ask students for their solutions.

Ask student pairs to report on any products they use that may contain ingredients of moderate to high concern and the potential health and environmental effects of these ingredients. Tell

students they may want to do further research on dosage and quantity amounts to be certain they're not exposed to too much of a potentially harmful substance.

For homework (give students about a week), have students create a health brochure or poster about PCP safety. Instructions and guidelines are included on Part III of their worksheet. Distribute the rubric as well.

**See extension:** Tell students if they are truly concerned about the health issues associated with PCP use, that can write to the FDA and EPA, urging them to better regulate the PCP industry and keeping them out of the environment.

## Enrichment Options

**Community Connection**
Have students write a letter to the FDA or EPA encouraging them to more fully regulate PPCPs
Hold a PPCP safety fair at a local community center, or for **the school to raise awareness.**

**Parent-Home Connection**
Have students share their brochures/posters with their parents and discuss with them use of personal care products.

**Field Experiences**
Visit a local wastewater treatment plant and find out why some toxic chemicals in PPCPs cannot be removed.

**Cross-Curricular Extensions**
Bring in more of a language arts component and engage students in an ethical debate about the use of animals for product safety and testing or about the harm the products we use are causing wildlife.

**Chemistry:** Have students make their own perfume or personal care products by using the recipes at freshfaceforward.org.

### Teacher Reflection

What instructional strategies worked and what made them successful? What will you change the next time you use this lesson? Why?

## More Resources are on the following pages

# Sample Press Release

**FOR IMMEDIATE RELEASE: Today's date**

## Catchy title:

**What:** Over 50 dedicated members of Youth In Action decided to do something about all the toxic chemicals in personal care products that are accumulating in their bodies and in the environment.

To keep these PCP chemicals from entering surface or groundwater they are replacing products they use that contain harmful chemicals with safer choices. They are also sharing what they learned at:

**When: Date and time**
**Where: Location:**
**For more details, contact:** (contact information)

**Why (give reasons why you participated):** "Whether we live near a coast or hundreds of miles away, we are all need clean water to survive. If we continue to add toxic chemicals from PCPs to the water we threaten our health and the wildlife that relies on clean water.

Toxic chemicals cannot be seen but they are one of the most pervasive issues currently facing our rivers, lakes, groundwater, and the ocean. These chemicals negatively affect the quality of our drinking water, the health of our communities, and are hazardous to wildlife and even hurt our economy. Most of the products we use have safe alternatives. "Although PCP pollution is one of the most challenging of problems, it is also one of the most preventable." (This compelling quote by teacher and contact information)

**Tips on Writing Effective Letters to the Editor**

The letters section is one of the most highly read sections in any newspaper or magazine. In addition, many web sites also now have special sections for readers to comment on issues of the day. Make sure you read the paper before you write to get an idea of their particular format and focus, and be sure to name specifically the editor you're addressing.

Letters to the editor are an easy way for you to voice your opinion to policy makers and to educate readers about issues that concern you. Letters to the editor can be used to correct facts in an inaccurate or biased article, to praise or criticize a recent article or editorial, or simply promote your opinion on an important issue.

*Key points:* Be timely – Capitalize on recent news and events, respond within 24 hours of a story if possible. Be sure to refer to the article or event you are responding to in the first sentence of the letter.

Keep it short and simple – Under 250 words ideally, even less if you can. Research the paper or magazine you are writing to see if they have a specific word limit. Keep your points clear and stick to one subject. Look at the editorial page of the publication you're writing to and copy the format they normally print.

Think locally – Demonstrate how this issue effects you locally, and - if possible - mention lawmakers or news makers by name to ensure you get their attention. Sign your letter. Include your name, address and telephone number. Papers may need to contact you if they are considering printing your letter. Don't worry—they won't print your phone or street address.

Follow-up. If the newspaper doesn't call you, call them! Speak to the person in charge of letters to the editor (You should know who this is before writing your letter). Ask if they plan on printing your letter, and if not, ask if they have any feedback for you. Thank them for their time and feedback.

Don't be discouraged if your letter is not printed. Every time you submit a letter, you are educating the editorial board of your paper and paving the way for future letters to be printed. Keep trying!

Seal the deal. If your letter is printed, be sure to send us a copy so we can track our effectiveness. If you mention an elected official, or other newsmaker you may want to send them a copy too.

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**PCP Use Student Worksheet**
**(Homework given before day 1)**

**NAME**_____

**Personal Care Products you use**

Based on the definition of PCPs, brainstorm as many products that you use on a regular basis (at least three times per week) and list them below.

| Type of product / category | Brand name and product | | Type of product / category | Brand name and product |
|---|---|---|---|---|
| Ex: Face Cream | Oil of Olay – Total Effects Night Firming Cream | | | |
| Ex: Toothpaste | | | | |
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**Day 1: PCP Safety – Test Your Knowledge Pre Test**

**NAME**_____

**How much do you know about PCP safety?**

1 The FDA must approve all PCPs before they are sold in stores. ____ T _____ F

2 Chemicals used in PCPs like soaps, lotions, and shampoos can cause problems in fish, frogs and other wildlife. ____ T _____ F

3 The EPA has limits for the amount of chemicals in PPCPs that can enter streams, rivers lakes and groundwater. ____ T _____ F

4 Wastewater treatment plants remove all chemicals from water ____ T _____ F

5 "Cruelty free" or "not tested in animals" means that no animal testing was done on the product and its ingredients ____ T _____ F

6 If a product is labeled "all natural" or "organic" it's probably safer ____ T _____ F

7 Even if a product is labeled "hypoallergenic" it may contain substances that can cause allergic reactions ____ T _____ F

8 Choosing products with the claim "dermatologist tested" is a way to avoid an allergic reaction or other skin irritation ____ T _____ F

9 PCPs are required to have an expiration date. _____T _____F

10. Government and FDA regulations require companies to perform specific tests to demonstrate the safety of individual products or ingredients and requires them to share their safety information with the FDA. _____T _____F

As you review the answers as a class, use this space to take notes about PCP safety.

**Homework Day 1 - How safe are my products?**
**The Fresh Face Forward Toxic 15**

**NAME**_____

Directions: Read the labels on the products that you listed on "My personal care products" worksheet and look for the Fresh Face Forward toxic 15 chemicals. Add the products that contain any of the toxic 15 and complete this table for each of those products. Use the back of this sheet if you need more space.

| Type of product / category | Brand Name and product | Toxic 15 ingredients in my product | Health Effects (possible or known); Use the Environmental Working Group Skin Deep Database for more information www.ewg.org/skindeep. |
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Answer the following questions about your products:

What products do you use that contain, "*organic*", "*hypoallergenic*", "*natural*" or "*dermatologist tested*" on the label?

How many of your products contain Fresh Face Forward Toxic 15 chemicals?

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# FRESH FACE FORWARD TOXIC 15

## Are they in your products? Read your labels!

Did you know only 11% of the ingredients in personal care products have been tested for safety? The toxic 15 on this list were chosen because of known and suspected health and environmental hazards, and the frequency of their use in PCPs. An Environmental Working Group hazard score is listed for each chemical. For more information on chemicals and ratings, visit the Environmental Working Group's Skin Deep Database at http://www.ewg.org/skindeep/. The ingredient hazard score, from 1-10 reflects known and suspected hazards.


**Low hazard**


**Moderate hazard**


**High hazard**

### Toxic 15 in alphabetical order

| EWG Ratings | *CHEMICAL NAME/RISK* | *COMMON USES* |
|---|---|---|
| **Aluminum Powder**: 4-9<br>Aluminum Chlorohydrate: 3<br>Aluminum Sulfate: 2 | **Aluminum -** Research links to Alzheimer's and breast cancer. | Antiperspirants, spray types very dangerous as they are absorbed through the nasal passages. |
| **BHA: 9-10**<br>**BHT: 6** | **BHA and BHT -** Absorbed through the skin, is metabolized and stored in various body tissues. | Preservatives, in moisturizers, creams, and cosmetics |
| **10** | **Coal Tar and Coal Tar Dyes –** can cause cancer (stomach, esophagus, bladder, kidney and liver), skin irritation, are toxic to the liver, digestive system, immune system, brain development and build up in body organs and the brain | Byproducts of coal processing found in dandruff shampoos and medicated shampoos for lice and in hair dyes |
| **DEA: 7-10**<br>**MEA: 4-5**<br>**TEA: 5** | **Ethanolamines – Monoethanolamine (MEA), diethanolamine (DEA) and triethanolamine (TEA** can cause cancer (stomach, esophagus, bladder, kidney and liver), skin irritation, and impaired vision, toxic to the liver, digestive system, immune system, brain development and they build up in body organs and the brain | Most common chemical in cosmetic and personal care products. Used to produce foam and blend oil and water ingredients - found in perfume, shaving products, facial cleansers, bubble bath, body wash, shampoo, soap, baby products, moisturizers, sunscreen and hair dyes. |
| **Formaldehyde**<br>**DMDM hydantoin**<br>**10**<br>**Diazolidinyl urea - 4**<br>**Imidazolinyl urea - 3** | **Formaldehyde (DMDM hydantoin, 2-Bromo-2-nitropropane-1,3-diol) also diazolidinyl urea or imidazolidinyl urea - known carcinogen, human respiratory toxin, can cause irritation to skin, eyes, and lungs, strong evidence that it causes allergies and is an immunotoxin** | Preservative in some cosmetics including mascara, anti-aging creams to prevent bacteria growth. Also used in nail polish and some hair treatment chemicals for perms or hair straightening. Also used in soap, shampoo, bubble bath, toothpaste and mouth wash. |
| **8** | **Fragrance** is a complex mix of mystery ingredients considered proprietary for each company - an average of 14 chemicals per product not listed on the label, that can trigger allergic reactions or interfere with hormone function | Nearly every personal care product, even those marked "fragrance-free" or "unscented," may contain fragrance ingredients or those that mask the odor of the product. |
| **8** | **Oxybenzone** absorbs through the skin in significant amounts and is known to accumulate in people. Has been linked to allergies, hormone disruption and cell damage. | Sunscreen ingredient |

| EWG Ratings | *CHEMICAL NAME/RISK* | *COMMON USES* |
|---|---|---|
| **Methyl- and ethyl-** 4<br>**Propyl-, butyl-, isopropyl-parabens: 7** | **Parabens – Methyl-, propyl-, butyl-, isopropyl-, and ethyl-parabens -** endocrine disruption, immunotoxicity, biochemical and cellular level changes by interfering with gene expression, developmental/reproductive toxin, and a wildlife and environmental toxin | Preservatives usually found in products that contain water to prevent the growth of fungus and bacteria |
| 4 | **Petrolatum** is derived from petroleum - can cause contact dermatitis and is commonly contaminated with cancer causing chemicals | Used as a conditioner and moisturizer in bath products, cleansing products, skin care products, cosmetics, hair products, shaving products, and tanning products |
| 3-7 | **Polyethylene Glycol (PEG-20, Ceteareth) -**May contain potentially toxic impurities like 1,4-dioxane and ethylene oxide that can cause organ and immune system damage, and that cause cancer (uterine, breast, leukemia, brain), reduced immunity, nervous system disorders, miscarriages, and birth deformities | Thickens, dissolves oil and grease, and used in oven cleaners. Found in shampoo, conditioner, bath products, shaving products, deodorant, sunscreen, and cosmetics |
| **DBP: 10**<br>**DEP: 3**<br>**DEHP: 10.** | **Phthalates (- dibutyl- (DBP), diethyl- (DEP), and diethylhexyl- (DEHP**)) linked to male reproductive system disorders. Dibutyl Phthalate is an endocrine disruptor, developmental or reproductive system toxin, immunotoxin, human respiratory toxin, and bioaccumulates and persists in wildlife | Used in cosmetics as solubulizers and in perfumes to make the scent last longer. Pregnant women should avoid nail polish containing dibutyl phthalate. Everyone should avoid products with "fragrance" since the unlisted chemical mixture may contain phthalates. |
| **Cyclotetrasiloxane:** 5<br>**PEG-8 Dimethicone:** 3 | **Siloxanes -** can cause uterine tumors, endocrine disruption, impair fertility and neurotransmitter function, and are toxic to the immune system. They have been shown to create stress on liver, kidneys and lungs in animal studies. They can build up in living tissues | Used to soften, smooth and moisten. Found in hair products (shampoo, conditioners, hair spray, hair styling), deodorants, body wash, lotions, sunscreen, shaving products and facial products |
| 3 | **Sodium Lauryl (Laureth) Sulfate -** Despite its low rating, it is expected to be toxic or harmful to non-reproductive organ systems, is an eye and skin irritant when airborne, and is a suspected environmental toxin | Used in cleansing products like creams and lotions, and bubble baths. It helps with cleansing and removing oils and dirt from the body |
| 10 | **Toluene/Benzene** - strong evidence that these are developmental and reproductive toxins, toxic to other organ systems, bioaccumulates and persist in humans, are skin irritants and wildlife and environmental toxins. A pregnant woman's exposure to toluene vapors during pregnancy may impair fetal development. In human epidemiological and animal studies, toluene has been associated with toxicity to the immune system. Some evidence suggests a link to malignant lymphoma. | Volatile petrochemical solvents and paint thinner used in nail products to help with hardening. |
| 7 | **Triclosan/Triclocarban -** studies have shown it to be: an endocrine disruptor even at low doses, toxic to organ systems, a skin, eye and lung irritant, and considered a wildlife and environmental toxin. Triclosan can cause possible immune or allergenic effects, bioaccumulate in wildlife, disrupt thyroid function and reproductive hormones. Overuse may promote the development of bacterial resistance. | A pesticide used in anti-bacterial and anti-microbial soaps, acne lotions, some toothpastes and deodorants.<br><br>The American Medical Association and the American Academy of Microbiology say that soap and water is best to prevent spread of infections and reduce bacteria on the skin. |

Many of these ingredients have been linked to cancer in animals and/or humans, or are often contaminated with carcinogens, or readily form carcinogenic nitrosamines when mixed with other ingredients. These pose greater risks than food contaminants because they are absorbed by the skin and bypass the liver's protective detoxification process reaching the general blood circulation quickly. Many of them are known to also cause environmental harm.

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**PCP Safe Alternatives Student Worksheet Day 3**

**NAME**_____

Search more than 69,000 products at Environmental Working Group Skin Deep here: http://www.ewg.org/skindeep/

- You can browse by product type, example toothpaste lowest to highest safety concern
- Look for alternatives to products you can use that don't have the toxic 15 or are scored 0-2.

When you find a product with low concern, click on the link. You will then find a more detailed view of the product. Make a list of products you can use to replace any of your products that contain toxic chemicals on the worksheet provided.

**Include your original list of products and make a list of safer alternatives on the right.**

| Type of product / category | Brand name and product you currently use | | Possible safer alternative product to replace it |
|---|---|---|---|
| Ex: Face Cream | Oil of Olay – Total Effects Night Firming Cream | | |
| Ex: Toothpaste | | | |
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**In Class/Homework – Day 4**
Using a desktop publishing program such as Microsoft Publisher or Word or Apple Pages, create a three-panel consumer health awareness brochure or a poster that educates consumers about potential adverse health effects of some ingredients found in commonly used personal care products. Your target audience is the consumer…anyone who uses personal care products. Your brochure or poster should include the following information:

- Potentially harmful ingredients and their adverse health and environmental effects
- How personal care products are regulated
- PA Sea Grant, Fresh Face Forward and Consumer advocacy groups and the FDA contact information ("for more information…")

Be sure to consult the brochure rubric (cosmetic-brochure_rubric.doc) so you know how you will be graded. Use the resources below as well as additional sites you can find on your own to help you with the content of your brochure.

- Pennsylvania Sea Grant: www.paseagrant.org/toxins
- Fresh Face Forward: www.freshfaceforward.org
- Environmental Working Group Skin Deep: www.ewg.org/skindeep/app
- Safe Cosmetics http://www.safecosmetics.org/
- Story of Cosmetics: www.storyofcosmetics.org
- USGS Emerging Contaminants http://toxics.usgs.gov/regional/emc/
- Link to a variety of articles on cosmetic safety http://www.nlm.nih.gov/medlineplus/cosmetics.html

Enrichment Options

**Community Connection**

Write a letter to the FDA or EPA encouraging them to more fully regulate PPCPs.

Hold a PPCP safety fair at a local community center, or for the school to raise awareness.

**Parent-Home Connection**

Share your brochure with your family and discuss the use of personal care products.

**Uncover the Truth about PCP Safety Brochure or Poster Rubric**

**A total of 20 points is possible for each category.** **Name: _____**

**Group project rubric**

| CATEGORY | (4) Excellent | (3) Good | (2) Almost | (1) Not Yet |
|---|---|---|---|---|
| **Layout / Design** | The brochure is exceptionally attractive and well organized. | The brochure is attractive and well organized. | The brochure is well organized. | The brochure's formatting and organization of material are confusing. |
| **Writing - Mechanics** | All of the writing is done in complete sentences. Capitalization punctuation and grammar are correct throughout | Most of the writing is done in complete sentences. Most of the capitalization, punctuation and grammar are correct throughout | Some of the writing is done in complete sentences. Some of the capitalization, punctuation and grammar are correct throughout | Most of the writing is not done in complete sentences. Most of the capitalization, punctuation and grammar are not correct throughout |
| **Graphics** | The graphics go well with the text and there is a good mix of text and graphics. | The graphics go well with the text, but there are so many that they distract from the text. | The graphics go well with the text, but there are too few. | The graphics do not go with the accompanying text or appear to be randomly chosen. |
| **Content - Accuracy (Ideas)** | The brochure/poster contains a significant amount of accurate and detailed information about PCP safety. | The brochure/poster contains a good amount of accurate information about PCP safety | The brochure/poster contains some content (more could be included) and/or some information not accurate. | The brochure/poster contains little to no useful or accurate information. |
| **Sources** | There are many citations from a variety of sources accurately listed in the appendix. | There are some citations from a variety of sources accurately listed in the appendix | There are few citations accurately listed in the appendix | Incomplete citations are listed in the appendix |

## Individual Project Rubric Name: _____

| CATEGORY | (4) Excellent | (3) Good | (2) Almost | (1) Not Yet |
|---|---|---|---|---|
| **Time-management** | Routinely used time well throughout the project, got things got done by the due date. The group did not need extra time because of this person. | Usually used time well throughout the project to get things done by the due date. The group did not need extra time because of this person. | Did not routinely use time well throughout the project to get things done by due date. The group needed a little extra time because of this person. | Rarely used time well throughout the project to get things done by the due date. The group needed extra time because of this person. |
| **Contributions** | Routinely provided useful ideas during group participation the and in classroom discussion. He/she was a definite leader who contributed a lot of effort. | Usually provided useful ideas when participating in the group and in classroom discussion. He/she was strong group member who tried hard! | Sometimes provided useful ideas when participating in the group and in classroom discussion. He/she was a satisfactory group member. | Rarely provided useful ideas when participating in the group and in classroom discussion. He/she may have refused to participate at times. |
| **Attitude** | Was never publicly critical of the project or the work of others. He/she always had a positive attitude about the task(s). | Was rarely publicly critical of the project or the work of others. He/she usually had a positive attitude about the task(s). | Occasionally publicly criticized the project or work of other members and occasionally had a positive attitude about the task(s). | The student was often publicly critical of the project or the work of other members and rarely had a positive attitude |
| **Organization of Materials** | Notes/ information were kept in a folder and were neat and organized. | Notes/information were kept in a folder and were somewhat neat and organized. | Notes/information were kept in a folder but were not neat and organized. | Notes/information were disorganized or lost. |
| **Knowledge Gained** | Can accurately answer all questions related to facts in the brochure/poster and technical processes used to create it. | can accurately answer most questions related to facts in the brochure/poster and to technical processes used to create it. | can accurately answer some questions related to facts and to technical processes used to create it. | Appears to have little knowledge about facts or technical processes used. |
| **Compare/ Contrast** | Able to list several similarities/differences that reference the brochure/poster presentations. | Able to list some similarities/differences that reference the brochure/poster presentations. | Able to list a few similarities/differences that reference the brochure/poster presentations. | Unable to list similarities/differences that reference the brochure/poster presentations. |

# PCP Safety – Test Your Knowledge Post Test

**NAME**_____

**How much do you know about PCP safety?**

1 The FDA must approve all PCPs before they are sold in stores. ____ T _____ F

2 Chemicals used in PCPs like soaps, lotions, and shampoos can cause problems in fish, frogs and other wildlife. ____ T _____ F

3 The EPA has limits for the amount of chemicals in PPCPs that can enter streams, rivers lakes and groundwater. ____ T _____ F

4 Wastewater treatment plants remove all chemicals from water ____ T _____ F

5 "Cruelty free" or "not tested in animals" means that no animal testing was done on the product and its ingredients ____ T _____ F

6 If a product is labeled "all natural" or "organic" it's probably safer ____ T _____ F

7 Even if a product is labeled "hypoallergenic" it may contain substances that can cause allergic reactions ____ T _____ F

8 Choosing products with the claim "dermatologist tested" is a way to avoid an allergic reaction or other skin irritation ____ T _____ F

9 PCPs are required to have an expiration date. _____T _____F

10. Government and FDA regulations require companies to perform specific tests to demonstrate the safety of individual products or ingredients and requires them to share their safety information with the FDA. _____T _____F

**Use this space and the back of this page to share your thoughts on solving the health and environmental problems caused by PPCP chemicals. Include ideas on who, when, why, what, where and how.**

SP23485

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# Connect with your environment

Learn about environmental issues, in your community and how you can get involved.

CONTRIBUTED PHOTO

**Take the Sea Grant survey to help determine what pet owners and veterinary professionals know about proper disposal and effects of pet medications and care products on the environment.**

## How pet products can hurt our environment

**By ANNA McCARTNEY**
Contributing writer

Like those used by humans, pet products, including prescription medications, shampoos, parasite treatments and other products, are making their way into the environment with negative effects on wildlife.

The National Sea Grant program recently partnered with the American Veterinary Medicine Association to promote the reduction of improper disposal of pharmaceuticals and personal care products. As part of this project, Pennsylvania Sea Grant is working with partners at Oregon Sea Grant to better understand pet owner behavior and actions surrounding disposal. Oregon Sea Grant has developed a survey to collect related data that will help guide education and outreach efforts to reduce environmental damage caused by pet medications and care products.

This national survey is designed to learn more about the practices and awareness of this issue among pet owners and veterinary professionals. You must be 18 years or older to take the online survey which will be available until Nov. 1. Find the survey at www.paseagrant.org.

**ANNA McCARTNEY**, *a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at axm40@psu.edu.*




WWW.WASTEFREELUNCHES.ORG

**More and more schools are discovering the benefits of cutting down on the waste they produce, particularly in the lunchroom. For more information, go to www.wastefreelunches.org.**

## Students urge people to reuse bags, bottles

Pfeiffer-Burleigh Elementary School fifth-grade teacher Jane Ross shares advice from her students on how to encourage use of reusable bags, bottles and utensils.

Everyone should know that littering our Earth is bad for our lake. People just throw things away, and they get transferred into Lake Erie. These items can kill our fish! We should remember to reuse things. We need to Keep Pennsylvania Beautiful! — **Dhurey Abdisalan**

I think we should reuse things because if we don't, they could end up in our lake. Trash can damage the lake and animals in it, and I don't want animals to get hurt. I love fishing, and I don't want the fish to die! — **Riley Walker**

If you use non-reusable things, you are also wasting your money! — **Abdullah Haji**

People can use reusable bags, utensils and bottles; our landfills are getting filled with a lot of trash; this is slowly getting into our waterways. We don't want our water all dirty! — **Abiezer Aguilar**

People should reuse stuff like drinking water bottles, for example. They can also reuse eating utensils. You can use them at work and school, then take them home to be washed and reused. I think we should take good care of our environment! — **Latavius Collier**

ANNA McCARTNEY/Contributed photo

**Fresh Face Forward is the social change campaign created by Mercyhurst Environmental Communication students to increase awareness about toxic ingredients and empower the college community to choose products that are safe for human health, wildlife and the environment. Working with their professors and with their partner PA Sea Grant, they have completed year one, and are continuing the campaign on their Erie campus, and extending it to the Penn State Behrend campus. Learn more and take the pledge to become toxin-free at www.freshfaceforward.org.**

# Take this personally

*You can act to scrub chemicals from personal care products*

**By ANNA McCARTNEY**
Contributing writer

Why did Kaiser Permanente pull antibacterial soaps with triclosan from its 37 hospitals nationwide in 2010 and switch to traditional soaps and alcohol-based hand sanitizers?

The hospital chain phased out this toxic chemical because of its "precautionary approach" to safety and scientific evidence that triclosan is causing more harm than good. Signs have been mounting for years that triclosan and other chemicals in pharmaceuticals and personal care products (PPCPs) harm humans, wildlife and the environment. (For more about the problems go to: www.paseagrant.org/topics/toxins.)

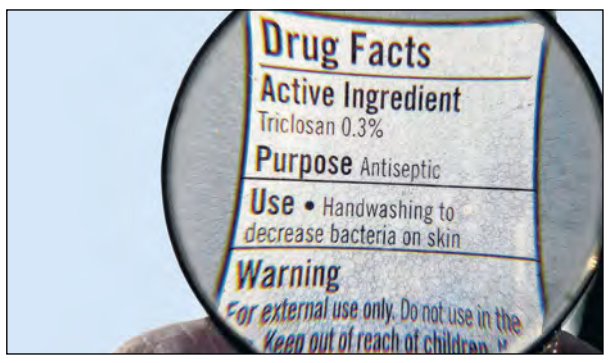
But that has not stopped manufacturers from using them. Nor has it changed the patterns of prescribing medications to consider the impact that PPCPs have on the environment and human health. While the 1972 Clean Water Act requires the EPA to regulate all pollutants, it would take an act of Congress to add these new toxins to the priority pollutant list to be regulated. Furthermore, the $50 billion PCP industry in the United States is largely unregulated, so products you buy can contain chemicals that harm wildlife and that are linked to cancer, birth defects, infertility and other chronic diseases.

That's why Kaiser took voluntary steps and why Minnesota recently passed legislation banning triclosan in consumer soaps and why Vermont passed the Toxic-Free Families Act. Actions like these are the easiest, least-expensive way to protect people and the environment from the harm caused by PPCPs, but they are not enough. Every person must do his or her part to fix these problems.

And that's why after a Pennsylvania Sea Grant presentation at Mercyhurst University in 2013, students took action to change individual behavior that would have the most impact — eliminating unnecessary toxic chemicals from products they use. Together with their professor, Anne Zaphiris, and PA Sea Grant staff, Marti Martz and Anna McCartney, they completed year one of a social change campaign they created called Fresh Face Forward to educate the college community about the issues and ask them to change their purchasing habits.

CONTRIBUTED PHOTO

**Penn State Behrend students share information with Chancellor Donald Birx about the Fresh Face Forward campaign and a free app that takes the guesswork out of shopping for safe personal care products, www.ewg.org/skindeep/app/.**




ANNA McCARTNEY/Contributed photo

**Your knowledge and purchasing power can help remove dangerous toxins like triclosan from our products and environment.**


WWW.WHOLESOMEWAVE.ORG

**Ask your doctors if they consider environmental impact when prescribing. Eliminating our reliance on drugs as easy fixes for preventable illnesses would greatly reduce their use and be safer for the environment and people.**

The campaign has begun year two on the Mercyhurst campus and has been expanded to the Penn State Behrend campus. The group hopes to secure funding to bring the campaign to Sea Grant colleges and universities in the Great Lakes states and then nationally.

There is proof that knowledge and these small decisions can create significant changes. When we don't buy products with toxic chemicals, companies are forced to provide safer choices. With pressure from consumer and environmental groups, Johnson & Johnson announced in 2012 that it would eliminate chemicals of concern from baby and adult products, including triclosan, parabens, phthalates and preservatives that release formaldehyde, a known carcinogen.

In September 2013, Procter & Gamble announced it would eliminate triclosan and the phthalate DEP from all products by 2014 and Wal-Mart asked manufacturers to eliminate as many as 10 unsafe toxic chemicals from products sold in its stores. One month later, Target announced a new sustainability standard to evaluate and rank personal care and cleaning products based on ingredient safety and disclosure and environmental impact.

Still, many have yet to take any action: many chemical companies, drug companies and those that make the products; businesses that sell the products; health-care providers that prescribe and dispense the products; politicians who make the laws, and agencies that enforce those laws.

Don't wait. Become part of the solution. Read the labels and ask questions before making purchases or decisions about your health care. If we don't buy toxins, there's no need to worry about toxins on us or in the environment. If we insist, health-care providers will stop prescribing unnecessary medications and instead focus on prevention. Set an example for your family and friends. Share what you learned and your concern with elected representatives and others. Prevention really is the only strategy.

**ANNA McCARTNEY**, *a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at axm40@psu.edu.*

**This page brought to you by:**

Sea Grant Pennsylvania

pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION Coastal Resources MANAGEMENT PROGRAM NOAA

**Check out these websites to learn more:**

www.paseagrant.org/toxins
www.ewg.org/skindeep
www.unwantedmeds.org
www.storyofcosmetics.org

Do ads influence your buying habits for pharmaceuticals and personal care products? Collect PPCP ads and list them according to their appeal. Do the ads distort or omit facts, or use endorsements by famous people?

Design an ad to inform and influence people to only buy and use PPCPs that don't harm you or the environment. Use your ad in a campaign to educate others in your school or community. Send your ads for possible publication in "your space" to Anna McCartney at axm40@psu.edu.

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# Connect with your environment

Learn about environmental issues, in your community and how you can get involved.


FEMA

**Extreme weather and emergency preparedness are topics to be covered at the October summit.**

## Summit prepares Erie for extreme weather

**By ANNA McCARTNEY**
Contributing writer

More frequent and intense storms and flooding events are happening and they are expected to continue threatening local homes, businesses and critical infrastructure into the future.

Because it's more important than ever to prepare our communities to be ready to adapt and recover from such disastrous events, Environment Erie, Pennsylvania Sea Grant, Mercyhurst University and NWPAGE and their partners are bringing extreme weather and emergency preparedness to the Erie community.

Together with the American Red Cross, Erie Insurance and others, these groups will hold a summit to discuss the actions needed to help create a hazard-resilient and emergency-prepared coastal community.

The summit, Oct. 8-10 at the Tom Ridge Environmental Center, is intended for all audiences. It kicks off on Oct. 8 with a free social hour and movie screening of "Extreme Realities" narrated by Matt Damon.

The cost for the Oct. 9 workshop on Thursday evening is $10 per household (limit of 2 people) and includes refreshments. The first 45 registered for this workshop will also receive a free emergency preparedness "Go-Bag" sponsored by Erie Insurance and the American Red Cross. This workshop has been tailored for all audiences, including families, homeowners and professionals, and includes the movie "Green City, Clean Waters" about what Philadelphia has done to become more resilient to larger storms and flooding.

The Oct. 10 workshop, on Friday, is focused toward professionals, business owners and municipalities. The cost is $15 and includes lunch. The summit closes with a bang that evening for anyone wanting to attend the Friday Night Live Dinner Theatre with comedy group In All Seriousness. The cost is $40 per person or $75 per couple.

Registration is required. You can register for any or all events, view the agenda and find more information about the summit by visiting www.environmenterie.org/events/public-workshops.

Exhibitor space and sponsorship opportunities are also available. Contact mpluta@environmenterie.org with questions.

**ANNA McCARTNEY**, *a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at axm40@psu.edu.*

yourspace
a place to share

CONTRIBUTED PHOTO

**Perseus House Charter School of Excellence students helped clean up their surrounding neighborhood.**

## We can help schools clean up their grounds

Students in local K-12 programs join the effort each year to collect trash and data for the International Coastal Cleanup on their school grounds and in their surrounding neighborhoods. They prevent the trash they collect from traveling to area streams and Lake Erie. Their data is combined with the Lake Erie ICC results and sent to the Ocean Conservancy to be added to international results and then used to find solutions to this preventable pollution.

Ten area schools have signed up to conduct a school cleanup. What about your school? This year's schools include: Harding Elementary, Perry Elementary, Pfeiffer-Burleigh Elementary, North East Middle School, Union City High School, Fairview High School, Northwestern High School, Perseus Charter School, Our Lady's Christian School and the Neighborhood Art House.

Contact Anna McCartney at axm40@psu.edu to register your school today.

*— Anna McCartney*

ANNA McCARTNEY/Contributed photo

**Pharmaceuticals and chemicals in personal care products (PPCPs) enter our waterways several ways including after they are passed through our bodies, runoff from agricultural areas and from direct introduction into our environment by flushing them or pouring them down the drain. Researchers agree that their presence in the water is causing some of the problems affecting aquatic wildlife.**

# Something's fishy

## *Marine life shows signs of troubled ecosystem*

**By ANNA McCARTNEY**
Contributing writer

Something is very out of sync in aquatic ecosystems around the world.

Evidence can be found in the unusually widespread frequency of fish lesions, excessive mortality and intersex fish. Male fish containing eggs in their testes have been found nationwide, including Pennsylvania's major watersheds, according to U.S. Geological Survey research. These problems plaguing fish and other aquatic life should be signs the water we rely on for drinking is also in trouble.

The likely culprits are endocrine disrupting chemicals (EDCs) that upset the endocrine system, which regulates hormones and the reproductive system. The sources of these chemicals are complex mixtures from agricultural animal wastes, pesticides and herbicides, and human sources from wastewater treatment plant effluent and other sewage discharges, according to Vicki Blazer, fish biologist and lead Pennsylvania study author. Low-dose exposure to EDCs at sensitive life stages can have long-term effects, including reproductive impairment, reduced disease resistance and early mortality.

These chemicals found in pharmaceuticals (human and veterinary) and personal care products (PPCPs), flame retardants, antibacterial products, plastics, pesticides and fertilizers are not currently regulated or commonly monitored. Since exposure to these EDCs has also been linked to conditions such as low sperm counts and testicular cancer in men, as well as breast cancer, obesity and autism, what's happening to aquatic animals should alert us to keep these chemicals out of the environment.

In 2008, Pennsylvania Sea Grant began tackling the problem of disposal and education. Before its first PPCP collection, funded by the U.S. Environmental Protection Agency in April 2008, the only choices locally were to flush unused meds, put them in the trash or keep them indefinitely in home medicine chests. All these options create serious public health issues, from drug abuse to water contamination.

PA FISH AND BOAT COMMISSION

**The unusually widespread incidence of fish lesions, excessive mortality and intersex fish in aquatic ecosystems around the world and in Pennsylvania indicates that something is very out of sync.**

ANNA McCARTNEY/Contributed photo

**Municipal wastewater treatment and drinking water plants were not designed to remove PPCPs and other EDCs. Currently the EPA does not require testing for them or for removal of these chemical compounds.**

ANNA McCARTNEY/Contributed photo

**Before PA Sea Grant's first PPCP collection in 2008, the only choices locally for dealing with unused meds was to flush them, put them in the trash or keep them indefinitely in home medicine chests.**

In 2010, with an EPA Great Lakes Restoration grant and with Great Lakes Sea Grant partners in New York, Ohio, Indiana and Illinois, Pennsylvania Sea Grant expanded its campaign to prevent unnecessary PPCPs from entering the environment. Sea Grant has educated and involved the public, elected officials, health-care professionals and others in solutions. Its campaign has reached 1,227,057 people and safely disposed of 21,765 pounds of unused meds.

Pa Sea Grant's collection events, data and the partnerships formed with groups locally, throughout the Great Lakes and nationally picked up the steam needed to address PPCP use and disposal. Groups include the Lake Erie College of Osteopathic Medicine School of Pharmacy and UPMC Hamot, health departments, police departments, the American Veterinary Medical Association, universities and others. Sea Grant staff members are currently working with the National Sea Grant Network to reach and teach more people nationwide.

Pennsylvania and other states now have collection boxes at police departments that accept prescription and over-the-counter and pet medications. And during the past four years, upward of 4 million pounds have been collected in just 32 hours during eight National Prescription Drug Take-Back days sponsored by the U.S. Drug Enforcement Administration and law enforcement agencies.

However, even these are not enough to keep drugs from every home, hospital, doctor's office, and long-term care facility out of the environment or the hands of abusers. The U.S. Department of Justice recently announced plans to authorize pharmacies and hospitals to serve as drop-off sites for unused meds and an option to mail them directly to an authorized collector. Until these rules go into effect, you can use the collection boxes or participate in the next National Prescription Drug Take Back Day this Saturday from 10 a.m. to 2 p.m. Visit www.paseagrant.org for sites or call (800) 882-9539.

Join us next week to learn more about PPCP problems and solutions.

**ANNA McCARTNEY**, *a communications and education specialist for Pennsylvania Sea Grant, can be reached by e-mail at axm40@psu.edu.*

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**Check out these websites to learn more:**

www.usgs.gov/newsroom
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www.unwantedmeds.org
www.storyofcosmetics.org

Investigative reporting by the Associated Press informed the public about chemicals in pharmaceuticals and personal care products in drinking water in 2008. Keep track of articles that show the importance of investigative reporting. Why is this type of reporting important?

Send your thought to axm40@psu.edu for possible publication in "Your Space."