



SILENT SPRING INSTITUTE

Researching the Environment and Women's Health

# Impact Report

*What you made possible in 2017*



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[www.silentspring.org](http://www.silentspring.org)

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*Thank you for making breast cancer prevention a priority and creating a healthier future for all of us!*

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*Did you pee for science?*

## Hundreds Participate in Historic Biomonitoring Study on Toxic Exposures

**Your support of this project underscored the ubiquity of hazardous chemicals and the need for more testing and better regulations**

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For the first time ever, people from every corner of the country were able to get their bodies tested for everyday chemicals through Silent Spring's Detox Me Action Kit study.

Since the biomonitoring study launched, nearly 800 of you signed up to participate and even more donated to the cause.

Your support of this historic research project generated new scientific knowledge about the sources of everyday chemical exposures. Here are some of the most interesting findings revealed, thanks to your generosity...



*At least two chemicals were found in all urine samples, but participants on the whole had lower levels of chemicals than most of the U.S. population.*

Study participants reported taking steps to avoid harmful chemicals. More than half of participants reported steering clear of products with parabens, BPA, triclosan, and fragrance. And based on the results, it shows!

*(continued next page)*

Thanks to you, we have new evidence to persuade manufacturers to stop putting harmful chemicals in everyday products.



## Study on Toxic Exposures...continued

- ✓ *Everyone had a detectable level of methyl paraben, a preservative often used in personal care products.*

Indeed, avoiding chemicals can be hard. Despite participants' efforts to avoid products containing parabens, everyone had a least one paraben detected. And more than 60% of participants had 3 or 4 parabens in their sample.

- ✓ *Participants had lower levels of BPA than the U.S. population, but higher levels of the chemical substitute BPF.*

About 85% of study participants said they avoid buying products with BPA on the label, so it's not surprising that their levels were lower than average. But by choosing "BPA-free," people may be buying products containing substitutes like BPF. These "chemical cousins" are similar in structure and properties, and raise many of the same health concerns.

### **Shifting the burden from you, the consumer, to manufacturers**

Your generosity for this project led to critical new insights into chemical exposures from everyday products ... knowledge that can be used to persuade manufacturers to stop using chemicals known to be harmful or that haven't been evaluated for safety. With each piece of new evidence you enable us to uncover, we get one step closer to the day when the burden is no longer on you as a consumer to police product labels, but on the makers of the products themselves. 🍷

**The New York Times**

**What Poisons Are in Your Body?**

By **NICHOLAS KRISTOF**  
FEB. 23, 2018

"Our bodies are full of poisons from products we use every day. I know – I've had my urine tested for them by Silent Spring.... chemical industry lobbyists have rigged the system so that we consumers just can't protect ourselves adequately."

*Sisterhood is powerful...*

## Partnership Addresses Racial Disparities in Breast Cancer

As you may know, Black women are more likely than White women to face more aggressive breast cancers, to be diagnosed with late-stage disease, and to die from breast cancer. They also have high rates of infertility and uterine fibroids. One possible explanation is that endocrine-disrupting chemicals, which are linked to breast cancer, overly burden Black women.

### Understanding chemical exposures facing Black women

To address these health disparities, Silent Spring is collaborating with the Resilient Sisterhood Project and Black Women for Wellness to make Detox Me Action Kits available to women in their network.

By participating in the study, Black women will be able to better understand their chemical exposures, protect themselves from harmful products, and advocate for change.

Thanks to many supporters of the Detox Me Action Kit study as well as other dedicated donors, Silent Spring was able to provide enough kits to enroll 45 Black women in the biomonitoring study through this partnership. 🌱

*"Personal care products that are marketed to Black women, such as shampoos, hair relaxers, and scalp conditioners, contain all sorts of chemicals that people should not really be using."*

~ Lilly Marcelin, MA  
Executive Director of the Resilient Sisterhood Project



*It's not easy being green...*

## Research on Indoor Air Pollutants Paves Way for Healthier Homes

Indoor air pollution can be a problem in many homes, and eco-friendly buildings are no exception. Thanks to you, we now have a better understanding of where many indoor pollutants are coming from.



### Researchers tested for nearly 100 chemicals

With your support, Silent Spring researchers tested newly-renovated “green” homes for the presence of nearly 100 chemicals. Data collected before and after the units were occupied revealed which chemicals came from building materials and which came from household products and consumer goods used by residents.

Regardless of the source, the chemicals found are linked to asthma, hormone disruption, reproductive disorders, lower IQ, cancer, and other health problems.

### Findings pave the way to greener building standards

The impact of your support of this research is far-reaching .... These findings have the potential to lead to “greener” building standards, healthier housing, and a greater understanding of how to minimize exposure to toxic chemicals in your home. 



“This is the first study to look at air pollutants pre- and post-occupancy, allowing us to really hone in on the sources of each chemical.”

~ Robin Dodson, PhD  
Scientist at Silent Spring Institute

Your generosity uncovered record-high levels of chemicals in dorm dust...

# Research Bolsters Case for Furnishings Free of Toxic Flame Retardants

**Results highlight critical need to create healthier living space on campuses and protect students from harmful exposures**

Thanks to your support of the first study of its kind, Silent Spring scientists uncovered concerning data on flame retardants in college dorms. In fact, students are exposed to some of the highest levels of toxic flame retardants ever reported in dust. This research was done as part of the Healthy Green Campus Project.

## Two campuses in the Northeast

Because of your generosity, close to 100 dust samples were collected for analysis from two college campuses in the northeast part of the United States. Researchers detected a total of 47 different flame retardant chemicals in those samples.

## Flame retardants fail to improve fire safety

As you may know, manufacturers add flame retardants to furniture to meet certain flammability standards. However, studies question their efficacy in improving fire safety. These toxic chemicals

escape into the air and dust, ultimately ending up in people's bodies. Exposure to flame retardants has been linked with a host of health problems including cancer, thyroid disease, decreased fertility, and lower IQ.

## Healthier options are available

Advocates hope to leverage these findings to compel institutions of higher learning to follow a healthier standard ... one that allows campuses to switch to flame retardant-free furnishings and utilize non-toxic ways of achieving fire safety like sprinkler systems, smoke detectors, and smoking bans. These changes would create a healthier living environment—and a healthier future—for more than 3 million college students currently living in dormitories in the U.S. 



Newsweek

**RECORD LEVELS OF TOXIC FLAME RETARDANTS FOUND IN COLLEGE DORMS**

BY DOUGLAS MAIN ON 4/27/17 AT 3:38 PM



ENVIRONMENTAL  
Science & Technology

**Flame Retardant Chemicals in College Dormitories: Flammability Standards Influence Dust Concentrations**

Robin E. Dodson,<sup>\*,†</sup> Kathryn M. Rodgers,<sup>‡</sup> Jose Guillermo Cedeno Laurent,<sup>§</sup> Adrian Covaci,<sup>||</sup> Giulia Poma,<sup>||</sup> Govindan Malarvannan,<sup>||</sup> John D. Spengler,<sup>§</sup> Ruthann A. Rudolph,<sup>§</sup> and Joseph G. Allen<sup>§</sup>

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 Supporting Information

**ABSTRACT:** Furniture flammability standards are a key component of fire safety. However, chemical flame retardants (FRs), FRs can be toxic and are linked to cancer and reproductive disruption. We measured the levels of FRs in dust from college dormitories and found record-high levels of FRs in dorm dust.

Almost all flame retardants found in dorm room dust belong to the family of flame retardants that the U.S. Consumer Product Safety Commission voted to ban last August.

Your investment in years of research paid off...

# Federal Commission Votes to Ban Group of Flame Retardants in Historic Ruling

## Silent Spring testimony provides scientific evidence for ban

Last September, the U.S. Consumer Product Safety Commission voted to remove an entire class of toxic flame retardants from four major categories of products. And your support of Silent Spring allowed us to provide years of research detailing the dangers of widespread exposure to these chemicals.

### Ruling impacts furniture, electronics, and more

The comprehensive ban will prevent organohalogen flame retardants from being used in common products like mattresses, upholstered furniture, children's toys, baby products, and electronics. This group of chemicals has been linked to cancer, decreased IQ in children, reproductive problems, hormone disruption, infertility, thyroid disorders, and birth defects – even at low levels.

The ruling marks the first time a federal agency has voted to ban an entire class of chemicals in consumer products. And it would not have been possible without your steadfast support.

### Decades of research compels panel to act

You've enabled us to track the public's exposure to toxic flame retardants for 15+ years. And our researchers were called upon to offer their expertise at the hearing.

*"We've been tracking exposures to flame retardants for the last 15 years. In every study we've done, we've found these chemicals, and often at levels that exceed the risk-based guidelines established by the U.S. Environmental Protection Agency."*

*~ Kathryn Rodgers, MPH  
Scientist at Silent Spring Institute*





## Safety experts and firefighters agree that flame retardants are not needed to slow down fires.

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Silent Spring scientists provided oral and written testimony explaining the health risks associated with flame retardants. This evidence was instrumental in the panel's ruling.

Banning an entire class of chemicals, rather than just one "bad actor," is a huge victory for public health. This comprehensive approach will prevent the decades-long practice by manufacturers of swapping one toxic chemical for another.

### **Advocacy critical to ensuring proper implementation**

The Consumer Product Safety Commission has historically been one of the public's strongest defenders against reckless corporations and their harmful products. And they are now tasked with implementing this ban. Continued advocacy and consumer pressure is critical to ensure this groundbreaking ruling isn't undermined by the Trump administration. [↪](#)

# Chicago Tribune

Federal panel votes to warn public about flame retardants in baby products, furniture  
Sept. 20, 2017



Your support uncovered strong evidence linking toxics and cancers...

# Exposure to Environmental Chemicals Shown to Be Significant Risk Factor for Breast Cancer

**Findings add fuel to advocacy efforts and cancer prevention strategies**

Made possible by your generosity, last year's research review by Silent Spring scientists showed the strongest connections yet linking exposure to environmental chemicals and breast cancer.

## Most comprehensive review of its kind

Examining new evidence published between 2006 and 2016, your research team conducted the most comprehensive review of human studies to date. The principal finding from their analysis is that exposure to toxics, especially early in life, may increase your risk of breast cancer.

## Timing of exposure is key

When the breast is growing—in the womb, at puberty, during pregnancy—cells are dividing quickly and are more vulnerable to damage from chemicals. Chemicals can also change how cells are programmed in a way that makes the breast more susceptible to breast cancer. In fact, early exposure to DDT, dioxins, and air pollution is associated with a two- to five-fold increased risk of breast cancer later on. Studies that fail to look at these particular periods of breast development may miss significant evidence of the effect of chemicals on cancer.



**The Sneaky Breast Threats  
Around You**  
Nov. 1, 2017



## ABSTRACT

**Background:** Many common environmental chemicals are mammary gland carcinogens in animal studies, activate relevant hormonal pathways, or enhance mammary gland susceptibility to carcinogenesis. Breast cancer's long latency and multifactorial etiology make evaluation of these chemicals in humans challenging.

**Objective:** For chemicals previously identified as mammary gland toxicants, we evaluated epidemiologic studies published since our 2007 review. We assessed whether study designs captured relevant exposures and disease features suggested by toxicological and biological evidence of genotoxicity, endocrine disruption, tumor promotion, or disruption of mammary gland development.

**Methods:** We systematically searched the PubMed database for articles with breast cancer outcomes published in 2006–2016 using terms for 134 environmental chemicals, sources, or biomarkers of exposure. We critically reviewed the articles.

**Results:** We identified 158 articles. Consistent with experimental evidence, a few key studies suggested higher risk for exposures during breast development to dichlorodiphenyltrichloroethane (DDT), dioxins, perfluorooctane sulfonamide (PFOSA), and air pollution (risk estimates ranged from 2.14 to 5.0), and for occupational exposure to solvents and other mammary carcinogens, such as gasoline components (risk estimates ranged from 1.42 to 3.31). Notably, one 50-year cohort study captured exposure to DDT during several critical windows for breast development (in utero, adolescence, pregnancy) and when this chemical was still in use. Most other studies did not assess exposure during a biologically relevant window or specify the timing of exposure. Few studies considered genetic variation, but the Long Island Breast Cancer Study Project reported higher breast cancer risk for polycyclic aromatic hydrocarbons (PAHs) in women with certain genetic variations, especially in DNA repair genes.

**Conclusions:** New studies that targeted toxicologically relevant chemicals and captured biological hypotheses about genetic variants or windows of breast susceptibility added to evidence of links between environmental chemicals and breast cancer. However, many biologically relevant chemicals and captured biological hypotheses that occurred decades before diagnosis or access biological samples stored that long. Other problems include measuring rapidly metabolized chemicals and evaluating exposure to mixtures.



## Research findings inform prevention and policy campaigns

Because of you, we were able to examine the research around these windows of susceptibility and uncover the strongest connections to date between early exposure to chemicals and breast cancer. These findings will help inform future prevention strategies to reduce breast cancer rates, including policy changes to improve regulation of toxic chemicals in consumer products. 🗨️

*"We must see the evidence from this study as a warning about newer chemicals. We can't afford to wait 50 years to find out they cause breast cancer. We need to develop new ways to anticipate cancer-causing chemicals based on this evidence and regulate them."*

~ Julia Brody, PhD  
Executive Director and Senior Scientist at  
Silent Spring Institute



*Your dollars are driving revolutionary research like this...*

## Signature Project Holds Key to Identifying Chemicals that Cause Breast Cancer

### Results from pilot tests reveal success of new technology

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The “Breast Carcinogen Screen” project is your best hope for a fast, affordable method for determining which chemicals are linked to breast cancer. With thousands of untested chemicals on the market, it would take years to test them all using traditional tools. But, thanks to you, we are going beyond the traditional...we call it BCScreen.

When fully realized, this tool will allow researchers to better screen chemicals for safety and help prevent companies from putting risky chemicals in consumer products.

### Genes change when exposed to chemicals that mimic estrogen

Your generosity enabled Silent Spring scientists to identify 500 human genes relevant to breast cancer. The scientists exposed breast cancer cells to eight different chemicals and analyzed them for changes in the activity of each of the 500 genes. The goal? To find a series of genetic signatures—or fingerprints—linked with exposure to breast carcinogens.



## Enter the organoids!

In addition to testing breast cancer cells, we also wanted to understand how *normal* breast cells respond when exposed to these chemicals. So we collaborated with Lawrence Berkeley National Laboratory where they're using stem cells to grow what are called breast organoids. These gland-like structures mimic real breast tissue.

Results will tell us more about the effects these chemicals could have on breast cancer development. This knowledge will help focus research on the chemicals most likely to increase breast cancer risk. Not to mention, improve our ability to choose safer chemicals for products.

### More chemicals await testing

Data from these pilot results are being further analyzed to determine what the genetic changes

mean, how unique each fingerprint is, and what this tells us about the toxicity of the chemicals. In the coming months, we will have more detailed results and begin to test many more chemicals using this novel BCScreen technology. 

We collaborated with Lawrence Berkeley National Laboratory where they're using stem cells to grow breast organoids (pictured below).

## First 8 Chemicals Screened for Effects on the Breast

**BPA:** used in some plastics, food and beverage packaging, and receipt paper

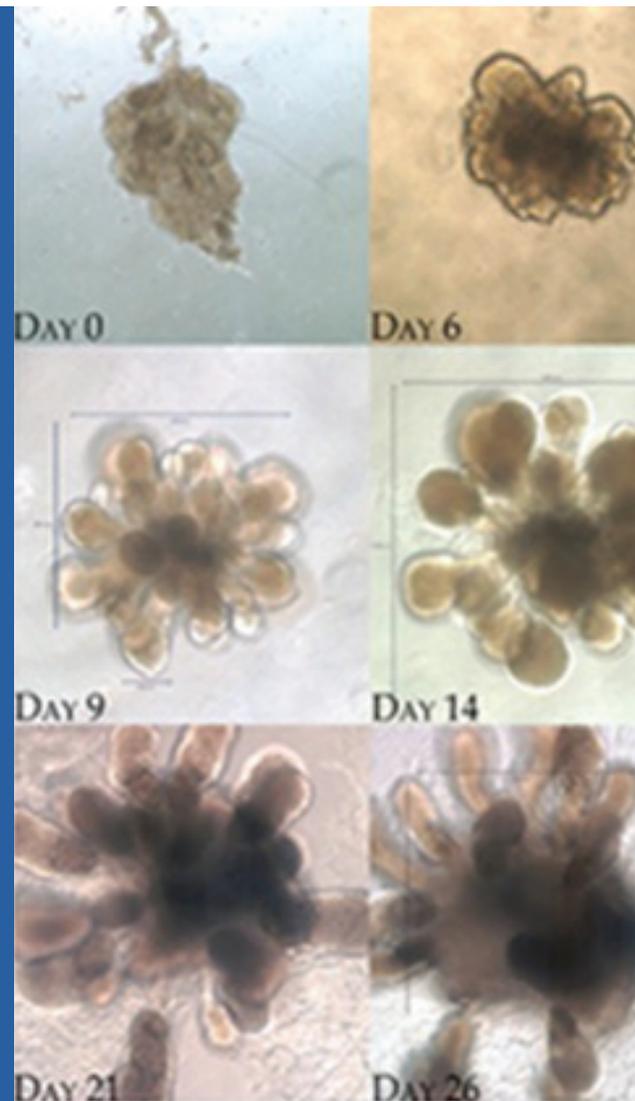
**BBP:** used in flexible plastics and vinyl flooring

**Genistein:** a phytoestrogen found in foods made with soybeans and soy protein

**PFOA, PFHxA, and PFNA:** three industrial chemicals used in non-stick, waterproof, and stain-resistant products and food packaging

**1,4 benzoquinone:** a breakdown product of the air pollutant benzene

**Tamoxifen:** a drug that blocks estrogen, used to treat and prevent breast cancer



*Your support in action!*

# National Stores Act to Eliminate Hazardous Chemicals from Products

## Increasing awareness of the research you fund sparks demand for safer alternatives

When large corporations start adopting policies to limit toxic chemicals from the products they sell, you know a sea change is coming. And this seismic shift wouldn't be happening without your generosity!

Your support of Silent Spring's research has fueled the scientific evidence and consumer outcry needed to shift the market and compel these companies to take action.

Some of the most notable changes include:

- ✓ **CVS announced removal of parabens, phthalates, and common formaldehyde-releasing chemicals** from nearly 600 store-brand personal care products.
- ✓ **Target pledged full ingredient disclosure**, the removal of highly fluorinated chemicals and flame retardants from textiles, and the removal of several chemicals of concern from personal care, cleaning, and baby products.
- ✓ **Trader Joe's announced plans to provide BPA- and BPS-free receipts** to customers.
- ✓ **Walmart set a goal of reducing "chemicals of concern"** in their products by 10%, affecting more than 55 million pounds of chemicals. 🌱

*Given the market share held by these corporations, their influence and actions have the potential to accelerate similar efforts across the industry.*

***Thanks to you, more options for safer products are on the horizon!***



# State & Local Victories:

## The ripple effects of your support in 2017

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Your support of Silent Spring's research fueled policy change across the country in 2017. And when enough state and local governments ban the use of a chemical, we will reach a tipping point that sparks national change ... change that leads to investments in green chemistry, new technology, and safer alternatives. Thanks to you, we are getting closer and closer to this tipping point every year.

✓ **You won cleaning product ingredient disclosure in New York**

In April 2017, the Empire State became the first in the nation to require manufacturers to disclose chemical ingredients used in household cleaning products on their websites. This program will serve as a pilot for possible expansion to other consumer goods, such as personal care items and children's products.



✓ **You won a ban on flame retardants in furniture in Maine**

Overriding the Governor's veto, legislators made national history by crowning Maine the first-ever state to pass a law phasing out the use of all toxic flame retardants in upholstered furniture. Passed in August 2017, this new national precedent prioritized protecting public health and safety over the manufacturing industry.



✓ **You won the "Right to Know" in California**

On the other coast, California enacted another first – requiring manufacturers of cleaning products to disclose hazardous chemicals and allergens on product labels and online. The law, enacted in October 2017, also requires certain types of employers to provide this information to their employees. 🧠



Preview of coming attractions in 2018...

# New Federal Research Center Launched with Focus on Pollutants in Drinking Water

## Silent Spring joins forces with URI and Harvard

The end of 2017 was marked by the launch of a new collaboration between Silent Spring Institute, the University of Rhode Island (URI), and Harvard T.H. Chan School of Public Health.

### Addressing a growing problem

Led by URI, the five-year project will tackle the growing problem of highly fluorinated chemicals, called PFASs, contaminating drinking water. Companies add PFASs to consumer products to make them non-stick, waterproof, and stain-resistant. This class of chemicals is also used in firefighting foams at airports and military fire training areas.

### Learning more about highly fluorinated chemicals

As part of this project, scientists will examine how these chemicals move through your environment, how you may be exposed through your drinking water, and how they affect your health. One area of research will focus on the groundwater near Joint Base Cape Cod—a military training site where PFASs were used during training exercises.

### Expanding research on Cape Cod

Because Cape Cod is on the frontlines of exposure to PFASs, Silent Spring will be expanding its work testing private wells, educating the local community (and you!) about the dangers of PFASs, and sharing the results of our research. Local project partners include the Massachusetts Breast Cancer Coalition, GreenCAPE, and the Sierra Club Cape & the Islands. [🔗](#)

*"Millions of Americans are exposed to drinking water contaminated with PFASs—it's become a national crisis."*

~ Laurel Schaider, PhD  
Scientist at Silent Spring Institute



Your support helped launch this new project!

## Teens Learn the Dangers of Exposure to Toxics

**Successful model will expand to six high schools in 2018**

Imagine the different choices you might have made had you'd known sooner about the health risks associated with chemical exposures early in life .... That's part of what inspired a new pilot program with high school students last year. And your support allowed it to take flight!

### Lessons particularly relevant during puberty

Jennie Liss Ohayon, a postdoctoral fellow at Silent Spring, is excited to be giving teenagers the knowledge they need to make healthier choices. And it couldn't come at a better time. As you may know, young people are particularly susceptible to environmental exposures because their bodies

are growing and changing fast. In fact, studies show exposure to toxics, especially early in life, can increase your risk of breast cancer and other health issues later on.

### Teens investigate sources of their own exposures

Because of you, Ohayon was able to pilot this new program at two Boston-area high schools last academic year. She helped students conduct surveys to identify their exposures to common chemicals at home. Students learned how chemicals can disrupt hormone activity and cause disease. They also learned strategies to reduce their exposures.

Working with the Massachusetts Breast Cancer Coalition as part of their Let's Talk Prevention program, this project is being expanded to include six new schools with a more in-depth curriculum, including the use of Silent Spring's Detox Me app. [📱](#)

“I hope to inspire students not only to lead healthier lives but also be proactive in advocating for change.”

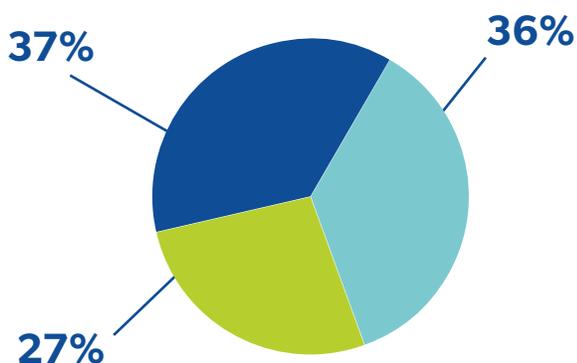
~ Jennie Liss Ohayon, PhD  
Postdoctoral Research Fellow at  
Silent Spring Institute



# Financial Information

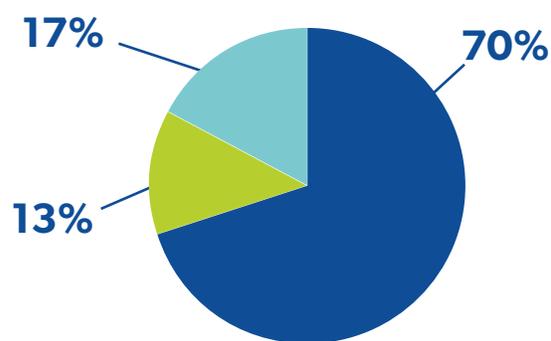
Silent Spring Institute is committed to the highest standards of financial transparency, integrity, and accountability. We value your trust and take your investment seriously. If you would like a copy of our audited financial statements or additional information of any kind, please contact Janet Kern in our Development Office at kern@silentspring.org or 617-332-4288 x222.

Income for 2017 Fiscal Year:  
\$2,385,858



- Government Grants \$657,781
- Foundation Grants \$852,332
- Individual Contributions \$875,745

Expenses for 2017 Fiscal Year:  
\$2,405,809



- Administration \$305,413
- Fundraising \$422,037
- Research & Programs \$1,678,359

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*Pursuing science for the public interest since 1994, Silent Spring depends on your philanthropic support to advance cutting-edge research and protect future generations from the preventable causes of breast cancer.*

***Thank you for your generosity!***

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