

A Not-So-Silent Spring:  
How the Concerns Expressed in One Novel  
Flourished into a Movement

Claire Swigart and Greta Heyl

Senior Division

Group Exhibit

Student Composed Words: 500 Words

Process Paper: 498 Words

## Process Paper

When choosing a project for National History Day, our focus was on the modes of communication within the last century. One topic that caught our attention was the Environmental Movement of the 1960s. At the source of this movement, we soon discovered, was Rachel Carson and her award-winning novel, *A Silent Spring*. Her story was especially inspiring to us, as despite her gender and humble background, she was able to influence a movement by communicating her concerns to the public.

There are many reliable sources on Carson and the impact of her novel, covering her experience as a marine biologist to her first encounters with the pesticide DDT, and everything in between. At the release of her novel, its influence was widespread, seen in book reviews, newspaper clippings, and even in the many interviews we conducted. Our favorite interview, however, came from Dr. Kenneth Richards, an Environmental Economics and Policy professor at Indiana University. His interview offered us more insight into the significance of *Silent Spring* as well as providing us with ways society can contribute to environmental issues. Another interesting source that we were able to utilize was our own image, displaying Claire at a protest, which exemplifies the ongoing environmental movement today.

We chose an exhibit to present our project. We loved the freedom that the exhibit allowed us and the ability we had to take many creative liberties with the project. Resembling the structure of a tree, our rotating poster board has four sides, each side depicting a different period of time surrounding the release of “*Silent Spring*.” The first side introduces our thesis, while also presenting both the novel and the letter that inspired Carson to write it. The second side covers the events that led up to the release of *A Silent Spring*, from the introduction of the pesticide DDT, to what drove Carson to publish her novel. The third side covers the main event, including

what *A Silent Spring* communicated as well as the intricate science of pesticides. The fourth side explains the impact, both short term and long term, of the novel while also describing the efforts of the environmental movement today. Each side shows how Carson's communication to the general public through her novel was able to spur on a movement and create beneficial change surrounding pesticides.

Rachel Carson had every reason to not publish her novel. The stigma surrounding women in the workplace was incessant, especially shown in the harsh responses of critiques following the release of her novel. Media called her hysterical and attempted to invalidate her life's work. Large agricultural corporations were thriving off the economical benefit of pesticides, ignoring the real harm of the dangerous chemicals. In response, Carson disputed these claims with ease and proved that her work had merit. Carson's legacy and the legacy of "Silent Spring" lives on through the environmental movement, as people continue to fight against the self-inflicted damage humans have instilled on our planet and its lush ecosystems.

## Annotated Bibliography

### Primary Sources

Baldwin, I. L. "Chemicals and Pests." *Science*, New Series, Vol. 137, No. 3535, pp. 1042-1043, 28 September 1962, <https://bwcase.tripod.com/sci1962.pdf>. Accessed 20 January 2021.

This book review covers "Silent Spring" and claims that Carson's view of DDT as an incredibly harmful chemical was false, as in reality the harm of it was very slight. This showed us a more diverse reaction to the release of the novel, as many first rejected it. We used this to show the many different responses to the publication of the novel, as many initial reactions were attempts to discredit Carson and her work.

Carson, Rachel. *Silent Spring*, Boston Houghton Mifflin, 1962.

This novel described the harmful effects of pesticides and communicated a concern for their impact on the environment to the general public. This is what inspired our entire project, as the persistent tone throughout the novel educated us and conveyed the urgency of making a change. We displayed the book on the front of our project.

Carson, Rachel. "Silent Spring-I." *The New Yorker*, New Yorker Magazine, 16 June 1962,

<https://www.newyorker.com/magazine/1962/06/16/silent-spring-part-1>. Accessed 10 January 2021.

This article was released by Rachel Carson, displaying the first couple chapters of her novel and allowing a wider audience to be able to read it. This showed the mass reach that Carson was able to have as well as her purpose of posting it, to communicate her concerns to the public. We used this for the main event of our project, or during the publication of Carson's novel.

Carson, Rachel. "Statement Before Congress." *Iowa State University*, Archives of Women's

Political Communication, 4 June 1963, <https://awpc.cattcenter.iastate.edu/2018/01/09/>. Accessed 16 January 2021.

This speech was given by Rachel Carson to the congress to further explain and support the topics she covered in her book, on the harm of pesticides and her plans to better the use of them. We used this in the long after section to show how even after the release of her novel, Carson continued to work and help the environmental movement.

Farrar, Margaret. "Best Seller List." *New York Times*, New York Times Magazine, 22 December 1962, <https://timesmachine.nytimes.com/timesmachine/1962/>. Accessed 15 May 2021.

This news article displays the best seller list from the year 1962, with *Silent Spring* at number two in the general category. This showed us how large of an initial impact the novel had, as in sales alone it was clearly widespread. We used this in the right after section of our project.

Gyrisko, George. "DDT to Control Potato Insects." *Journal of Economic Entomology*, Volume 38, Issue 2, 1 April 1945, Pages 169–173, <https://doi.org/10.1093/jee/38.2.169>. Accessed 15 May 2021.

This primary news source is an article put out regarding the benefits of the pesticide DDT, a glowing review on its ability to wipe out the Colorado Potato Beetle. This showed us how at the time people viewed DDT as an incredibly beneficial pesticide, like magic. We used this in the "Golden Age of Pesticides" portion of our project.

Huckins, Olga. "[Letter] 1958 Jan 27, Duxbury, Mass. [to] Rachel [Carson]." *Yale University Library*, Yale University Library, 27 Jan 1958, <https://collections.library.yale.edu/catalog/2026498>. Accessed 10 December 2020.

This primary source is a letter from Olga Huckins to Rachel Carson, describing how her neighborhood had been recently sprayed with the pesticide DDT. This was incredibly helpful to not only the creation but the inspiration of our project. By communicating her concerns to Carson, Huckins caused the creation of "Silent Spring" and was one of the first people to bring attention to the pesticide issue. We used this as a reference on the front of our project.

Johnson, Berill. Personal interview. 1 March 2021.

This interview with Claire's grandma helped us get a first hand view of how the book affected the youth of the time period. It was very interesting to see how Mrs. Johnson's opinion changed from reading the book.

Johnson, Vinncent. Personal interview. 1 March 2021.

This interview with Claire's grandpa also helped with that first hand view of the publication of *A Silent Spring*. He talked a lot about how he saw the book affect the world around him.

Lee, John M. “‘Silent Spring’ Is Now Noisy Summer.” *New York Times*, New York Times Magazine, 1962, <http://www.environmentandsociety.org/exhibitions/rachel-carsons-silent-spring>. Accessed 10 January 2021.

This newspaper describes the reaction of the general public to the release of “Silent Spring.” It shows how the initial confused response of the public transformed into a growing concern for the harm of pesticides and the health of the environment. We used this on the main event section to explain the different perspectives that people had.

Monsanto. “The Desolate Year.” *Monsanto Magazine*, Monsanto Magazine, October 1962, <https://enviroethics.org/2011/12/02/the-desolate-year-monsanto-magazine-1962/>. Accessed 10 February 2021.

The article clipping we used from this website showed the backlash from the pesticide industry, specifically the Monsanto company. We used this on the right after section of our project.

Noone, Joseph. “Pesticides Impact on Food Production and Consumption.” *ACS Publications*, ACS Legacy Archives, 1 October 1958, <https://pubs.acs.org/doi/pdf/10.1021/jf60092a603>. Accessed 16 January 2021.

This article was published before “Silent Spring,” and described the benefits of pesticides. We used this in the before section, as it reveals how no one challenged the harm of DDT, as seemingly its benefits seemed to far outweigh the negatives.

Potter, C. “The Future of Chemical Control of Insects.” *Online Library*, Wiley Online Library, October 1961, <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1744-7348.1961.tb03632.x>. Accessed 16 January 2021.

This journal publication was a speculation on the use of pesticides before the publication of “Silent Spring.” We used this to show how there was already a growing concern on pesticides amongst the general public before the publication of the novel.

Simmons, James Stevens. “How Magic is DDT?” *NIH Digital Collections*, U.S. National Library of Medicine, 1945, <https://collections.nlm.nih.gov/>. Accessed 19 December 2020.

This book provides a description of why DDT was so important and beneficial, especially in World War II. We used this to explain why people truly believed that there was nothing wrong with the use of pesticides, as they initially had a great impact on peoples' lives.

Rogers, W. G. "Attack On The DDTers..." *Tampa Bay Times*, Tampa Bay Times Magazine, 30 September 1962, <https://www.newspapers.com/clip/26097099/tampa-bay-times/>.

Accessed 10 January 2021.

This newspaper clipping describes the dangers of DDT that were covered in "Silent Spring" and supports the arguments made by Carson in her novel. We used this to show the growing movement of the general public towards a greater activeness in environmental issues. This was in the right after section of our exhibit.

Wang, Zuoyue. "In Sputniks Shadow- Responding to Rachel Carson's Silent Spring." *CPP*, Rutgers University Press, 2008, <https://www.cpp.edu/~zywang/wangsputnik12.pdf>.

Accessed 15 May 2021.

In this work, the author challenges the topics covered by Carson in "Silent Spring." This showed us the different ways critics attempted to unravel Carson's argument and attempt to contradict her. We used this in the right after section of our project.

### Secondary Sources

Berniel. "Enthusiasm, Scepticism, and Science." *WordPress*, WordPress, 25 March 2010, <https://enthusiasmscepticismscience.wordpress.com/2010/03/25/insecticide-alarmism-the-ddt-ban-and-the-global-warming-scare/>. Accessed 16 January 2021.

This article describes and explains the pesticide DDT, providing reason behind growing concerns at insecticides and showing how the ban on "Silent Spring" was to protect DDT from the growing alarm of the general public. We used this to describe the responses of both the public and pesticide agencies following the release of the novel.

"DDT- A Brief History and Status." *United States Environmental Protection Agency*, United States Environmental Protection Agency, 11 August 2017, <https://www.epa.gov/>

ingredients-used-pesticide-products/ddt-brief-history-and-status. Accessed 16 January 2021.

This government website describes the time span of the pesticide DDT, from when it was banned following the publication of “Silent Spring” to the present. This showed us how effective Carson was in communicating the harm of DDT to the public, and we used this in the long term impact portion of our project.

“Environmental Impacts.” *Pesticide Action Network*, Pesticide Action Network North America,

<http://www.panna.org/resources/environmental-impacts>. Accessed 20 February 2021.

This informative website shares both the long term effects of pesticides that are beginning to reveal themselves now as well as pesticides that still remain in modern agriculture today. We used this the long after portion of our project to show where environmental agencies are today.

Enzley, Kenia. Personal Interview. 5 January 2021.

This interview with Mrs. Enzley, who is an editor, focused mostly on what makes a bestselling book and why *A Silent Spring*, a book about pesticides of all things, became so popular.

Ganzel, Bill. “Silent Spring & The Environmental Movement.” *Living History Farm*, The Ganzel

Group, 2007, [https://livinghistoryfarm.org/farminginthe50s/pests\\_08.html](https://livinghistoryfarm.org/farminginthe50s/pests_08.html). Accessed 10 January 2021.

This informational website gives details to the events that led up to Rachel Carson publishing “Silent Spring” in the environmental community as well as the immediate impact that followed. We used this as context in our before section and then to describe the main event.

Ganzel, Bill. “The Golden Age of Pesticides.” *Living History Farm*, The Ganzel Group, 2007,

[https://livinghistoryfarm.org/farminginthe50s/pests\\_01.html](https://livinghistoryfarm.org/farminginthe50s/pests_01.html). Accessed 10 January 2021.

This informational website describes the period of time right before “Silent Spring” was published and before awareness of the dangers of pesticides became evident. This was very helpful and describing why pesticides were so popular and also explaining who was benefiting. We used this in the right before section of our project.



Gershon, Livia. "Rachel Carson's Critics Called Her a Witch." *JSTOR*, JSTOR Daily, 21

February 2019, <https://daily.jstor.org/rachel-carsons-critics-called-her-a-witch/>. Accessed 16 January 2021.

This article covers the immediate reaction of the general public following Carson publishing her novel, met with criticism and doubt before realizing the accurate proof of her work. This showed us that Carson had planned for a reaction like this, and it also shows how the gender barriers of the time still affected her, as she was portrayed as witchy and hysterical. We used this on the right after part of our project.

Graham, Frank. "Fifty Years After Silent Spring, Attacks on Science Continue." *Yale*

*Environment 360*, Yale School of the Environment, 21 June 2012, [https://e360.yale.edu/features/fifty\\_years\\_after\\_rachel\\_carsons\\_silent\\_spring\\_assault\\_on\\_science\\_continues](https://e360.yale.edu/features/fifty_years_after_rachel_carsons_silent_spring_assault_on_science_continues). Accessed 20 February 2021.

This article describes the long term impact of the publication of "Silent Spring," describing how science is still ever-changing and current harm on the environment such as climate change is greatly criticized. This showed us that although Carson's novel was very impactful, there wasn't a complete shift in environmental regulations. We used this in the long term impact portion of our project.

Griswold, Eliza. "How 'Silent Spring' Ignited the Environmental Movement." *New York Times*,

New York Times Magazine, 21 September 2012, <https://www.nytimes.com/2012/09/23/magazine/how-silent-spring-ignited-the-environmental-movement.html>. Accessed 10 January 2021.

This article describes how the release of "Silent Spring" communicated the harm of pesticides to the general public, resulting in a mass movement towards environmentalism and the riddance of harmful man-made chemicals such as DDT. This confirmed that the release of Carson's novel sparked change in the masses of people, and we were able to use this in the right after and long after portions of our project.

"Industrial and Agriculture Interests Fight Back." *Environment and Society Portal*, Environment

and Society, 2020, <http://www.environmentandsociety.org/exhibitions/>. Accessed 20 February 2021.

This informational website describes the events surrounding “Silent Spring” on a much broader level, showing what other environmental associations and agencies were doing at the time and the rumors that began to surround DDT. This provided us with a greater context of what was going on at the time of publication, and we used this in the main event portion of our project.

“Legacy of Rachel Carson’s Silent Spring.” *Chemistry For Life*, American Chemical Society National Historic Chemical Landmarks, 9 April 2020, <https://www.acs.org/content/acs/en/education/whatischemistry/landmarks/>. Accessed 20 February 2021.

This commemorative booklet describes Rachel Carson’s life before she took on “Silent Spring,” as well as the bioaccumulation of DDT that caused a growing concern in scientists and environmentalists. This was helpful in providing context around the perspective of scientists on the worsening effects of pesticides shortly before the novel was published.

Palacio, Zulima. “‘Silent Spring’ Turns Fifty.” *VOA News*, VOA News, 4 September 2012, <https://www.voanews.com/usa/silent-spring-turns-fifty#:~:text=More%20than%20six%20million%20copies,now%20a%20National%20Historic%20Landmark>. Accessed 20 February 2021.

This article provides exact publication numbers of Carson’s “Silent Spring.” This showed us the wide influence that the novel was able to have, as well as the growing concern for pesticides and the desire to be educated on the topic. We used this in the main event and right after portions of our project to show the large amount of people the novel reached.

Peate, Karina. Personal interview. 10 May 2021.

This interview with an activist in the current environmental movement reflected the ongoing impact of Silent Spring on new generations. It showed us that the drive of the original environmental movement is still ever-existent in today's time. We used this in the long after portion of our project.

“Pesticide.” *New World Encyclopedia*, New World Encyclopedia, 10 March 2019, <https://www.newworldencyclopedia.org/entry/Pesticide>. Accessed February 20 2021.

This informational website provides a complete history of pesticides, including DDT, and in addition describes how pesticides work and what they are. This was very helpful in getting a better grasp of where DDT fit in with other pesticides, and we were able to use

this source to describe what pesticides are in our scientific background section of our project.

“Pesticides.” *National Institute of Environmental Health Sciences*, Health and Human Services, 10 February 2021, <https://www.niehs.nih.gov/health/topics/agents/pesticides/index.cfm>. Accessed 20 February 2021.

This informative website describes how pesticides work, and how they affect both the wildlife and human health. This was extremely helpful in getting a better understanding of pesticides and why they are so harmful. We used this on the scientific background portion of our project.

Popova, Maria. “Rachel Carson’s Brave and Prescient 1953 Letter Against the Government’s Assault on Science and Nature.” *Brain Pickings*, Brain Pickings, <https://www.brainpickings.org/2017/02/08/>. Accessed 15 May 2021.

This website provided both a key quote from Carson as well as insight into her purpose for writing *Silent Spring*. It showed us that Carson was determined to convince everyone of the dangers of pesticides, including people in high positions of power. We used this in the main event portion of the project.

“Rachel Carson.” *Sierra College*, Sierra College National History Museum, 2015, <https://www.sierracollege.edu/ejournals/jsnchm/v6n1/carson.html>. Accessed 16 January 2021.

This website provided context to both the beginning and end of Rachel Carson, as well as showing the awards she had received after her untimely death. This helped us form a reasonable timeline of the events of Carson’s life and provided us with new information of the awards she won. We used this in the right before and long after to describe Carson’s life and her mass impact.

“Rachel Carson Biography.” *U.S. Fish & Wildlife Service*, National Wildlife Refuge, 5 February 2013, [https://www.fws.gov/refuge/Rachel\\_Carson/about/rachelcarson.html](https://www.fws.gov/refuge/Rachel_Carson/about/rachelcarson.html). Accessed 10 January 2021.

This biography gives an excellent description of the events in Rachel Carson’s life, providing context as to why she cared about the harm of DDT and her job as marine biologist. This showed us why the pesticide and insecticide issue mattered and helped us

to understand Carson's life. We used this in the main event and right before sections to provide insight into who Rachel Carson was.

“Rachel Carson: Legacy Instigator.” *Pittsburgh Green Story*, Green Building Alliance, 20

February 2017, <https://pittsburghgreenstory.com/rachel-carson/>. Accessed 25 February 2021.

This article covers the legacy of Rachel Carson and her impact on both her direct colleagues and the general public. This was an excellent resource for pulling quotes, especially from Jimmy Carter and Carson herself. We used this source for the long term impact section of our poster.

Richard, Kenneth. Personal Interview. 17 February 2021.

This interview with Professor Richards from the IU School of Public and Environmental Affairs helped us mostly see how the use of pesticides and the regulations on them changed from before *A Silent Spring* to after. We used this in the long after portion of our project.

Silver, Kristopher. “Voltage-Gated Sodium Channels as Insecticide Targets.” *National Center for*

*Biotechnology Information*, US National Library of Medicine, 18 June 2018,

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6005695/>. Accessed 15 May 2021.

This very in depth article describes the complicated science of insecticides and how they are able to attack pests. This article made us realize and helped us to communicate the true dangers of having pesticides such as DDT in our ecosystems. We used this in the Science of DDT section.

“The Consequences of Silent Spring.” *America's Library*, Library of Congress,

[http://www.americaslibrary.gov/aa/carson/aa\\_carson\\_consequenc\\_3.html](http://www.americaslibrary.gov/aa/carson/aa_carson_consequenc_3.html). Accessed 20 February 2021.

This informational website describes how “Silent Spring” was able to change the minds of environmental leaders, and credits Rachel Carson with the success of both her novel and the pesticide effort. This source was very important as it helped us reaffirm the mass impact the novel had. We used this in the long term impact portion of our project.

“The Story of Silent Spring.” *National Resources Defense Council*, National Resources Defense Council 2021, 13 August 2015, <https://www.nrdc.org/stories/story-silent-spring>.

Accessed 16 January 2021.

This article describes the actions that Rachel Carson went through to create her novel and its impact on the general public. We used this to describe the main event of our project through Carson’s life and the immediate reaction of people to her novel.

### Photos

“Bioaccumulation and Biomagnification: Increasingly Concentrated Problems.” *Cimi Outdoored*,

Catalina Island Marine Institute, 2020, <https://cimioutdoored.org/bioaccumulation>

-and-biomagnification-increasingly-concentrated-problems/. Accessed 27 February 2021.

The image we used from this website was a bioaccumulation graphic photo to describe the effects of DDT. We used this in the scientific background section.

Conis, Elena. “DDT Disbelievers: Health and the New Economic Poisons in Georgia after World

War II.” *Southern Spaces*, Southern Spaces, 28 October 2016, <https://southernspaces.org/2016/ddt-disbelievers-health-and-new-economic-poisons-georgia-after-world-war-ii/>.

Accessed 27 February 2021.

Accessed 27 February 2021.

The picture we used from this article depicted a poster advertising pesticides. We used this in the before section of our project.

Clegg, Brian. “DDT.” *Chemistry World*, Royal Society of Chemistry, 15 May 2012,

<https://www.chemistryworld.com/podcasts/ddt/3005750.article>. Accessed 10 February

2021.

The image we used from this website depicts the molecular structure of DDT. It can be found in the science section of our project.

Doyle, Jack. “Power in the Pen.” *The Pop History Dig*, The Pop History Dig, 21 February 2021,

<https://www.pophistorydig.com/topics/rachel-carson-silent-spring/>.

Accessed 10 February 2021.

The image we used from this website is of the *New Yorker* magazine issue where Rachel Carson's first few chapters of *A Silent Spring* were featured. It can be found in the main event section of our project.

Griswold, Eliza. "How 'Silent Spring' Ignited the Environmental Movement." *New York Times*, New York Times Magazine, 21 September 2012, <https://www.nytimes.com/2012/09/23/magazine/how-silent-spring-ignited-the-environmental-movement.html>. Accessed 10 January 2021.

The picture used from this article was from 1951, in which Rachel Carson is peering into a microscope. We used this for the right before portion of our project.

Johnson, Caitlyn. "The Legacy of 'Silent Spring.'" *CBS News*, CBS Interactive In., 22 April 2007, <https://www.cbsnews.com/news/the-legacy-of-silent-spring/>. Accessed 10 February 2021.

The photo we used in this article depicts Rachel Carson reading from her novel, "Silent Spring." We used this in the main event section.

---

Krupp, Lexi. "Yards With Non-Native Plants Create 'Food Deserts' for Bugs and Birds." *Audubon*, National Audubon Society, 22 October 2018, <https://www.audubon.org/news/yards-non-native-plants-create-food-deserts-bugs-and-birds>. Accessed 10 February 2021.

The picture from this website we used is an image of a bird eating a worm. We used this in our science section.

"Legacy of Rachel Carson's Silent Spring." *Chemistry For Life*, American Chemical Society National Historic Chemical Landmarks, 9 April 2020, <https://www.acs.org/content/acs/en/education/whatischemistry/landmarks/>. Accessed 20 February 2021.

The image we used from this website was a photo of the bioaccumulation of DDT to display what it looked like. We used this in the scientific background section.

"Overview of Neuron Structure and Function." *Khan Academy*, Khan Academy,

<https://www.khanacademy.org/science/biology/human-biology/neuron-nervous-system/a/overview-of-neuron-structure-and-function>. Accessed 10 February 2021.

The image we used from this website was a photo of a neuron to explain the effects of DDT on the human body. We used this in the scientific background section.

“Protecting Our Plant Starts with You.” *National Ocean Service*, National Oceanic and

Atmospheric Administration, 13 August 2017, <https://oceanservice.noaa.gov/about/>.

Accessed 15 May 2021.

This infographic depicts what normal everyday citizens could do to help our ecosystems, including a section talking about runoff into natural bodies of water. This helped us understand and show that the environmental movement is still ongoing, and we can all help in our own way. We used this in our long term impact section.

Romero, Frances. “The Presidential Medal of Freedom.” *Time Magazine*, Time Magazine USA,

12 August 2009, <http://content.time.com/time/nation/article/0,8599,1915813,00.html>.

Accessed 27 February 2021.

The image we used from this article was a picture of what the Presidential Medal of Freedom looked like that Rachel Carson received. We used this on the long term impact section of our project.

“Rachel Carson.” *Sierra College*, Sierra College National History Museum, 2015,

<https://www.sierracollege.edu/ejournals/jsnchm/v6n1/carson.html>. Accessed 16 January 2021.

The image we used from this website was a headshot of Rachel Carson, the cover photo used when she posthumously received the Medal of Freedom. We used this on the long term impact section of our project.

“The Consequences of Silent Spring.” *America’s Library*, Library of Congress,

[http://www.americaslibrary.gov/aa/carson/aa\\_carson\\_consequenc\\_3.html](http://www.americaslibrary.gov/aa/carson/aa_carson_consequenc_3.html). Accessed 20 February 2021.

The photo we used from this website showed Rachel Caron speaking at congress. We used this

for the long after part of our project.

Wallace, Rob. “SciTech Tuesday: Two inventions save lives in WWII, but are later abandoned due to side effects.” *The National WWII Museum*, The National WWII Museum New Orleans, 19 January 2019, <http://www.nww2m.com/2016/01/scitech-tuesday-two-inventions-save-lives-in-wwii-but-are-later-abandoned-due-to-side-effects/>. Accessed 16 January.

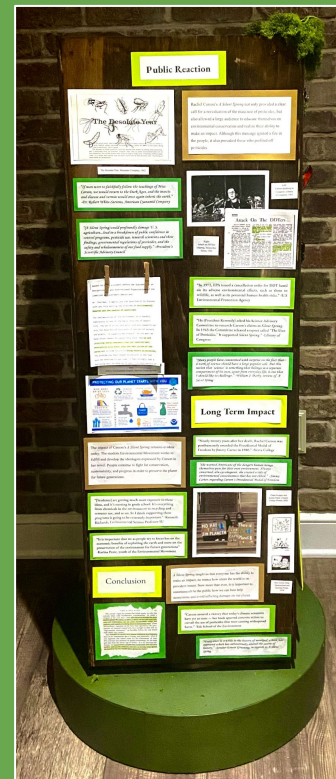
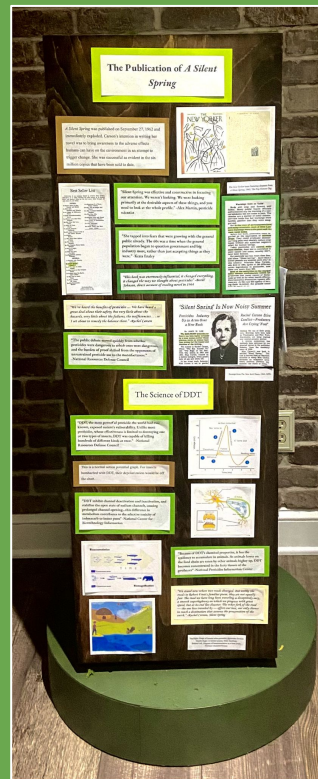
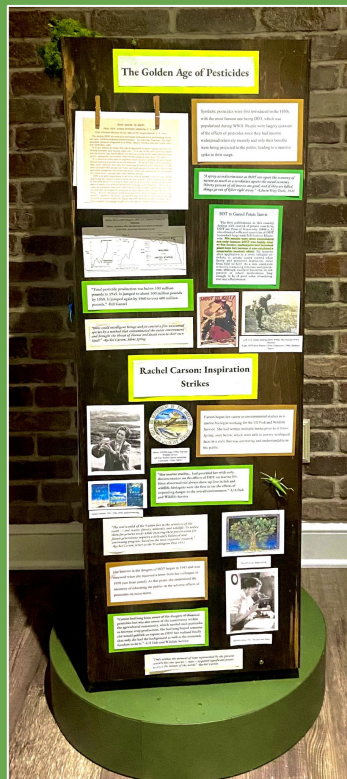
This image from this website we used depicts a soldier during WWII spraying DDT in a field. It can be found in the long before section.

“What is an Action Potential?” *Molecular Devices*, Molecular Devices, [applications/patch-clamp-electrophysiology/what-action-potential](https://www.moleculardevices.com/applications/patch-clamp-electrophysiology/what-action-potential). Accessed 10 February 2021.

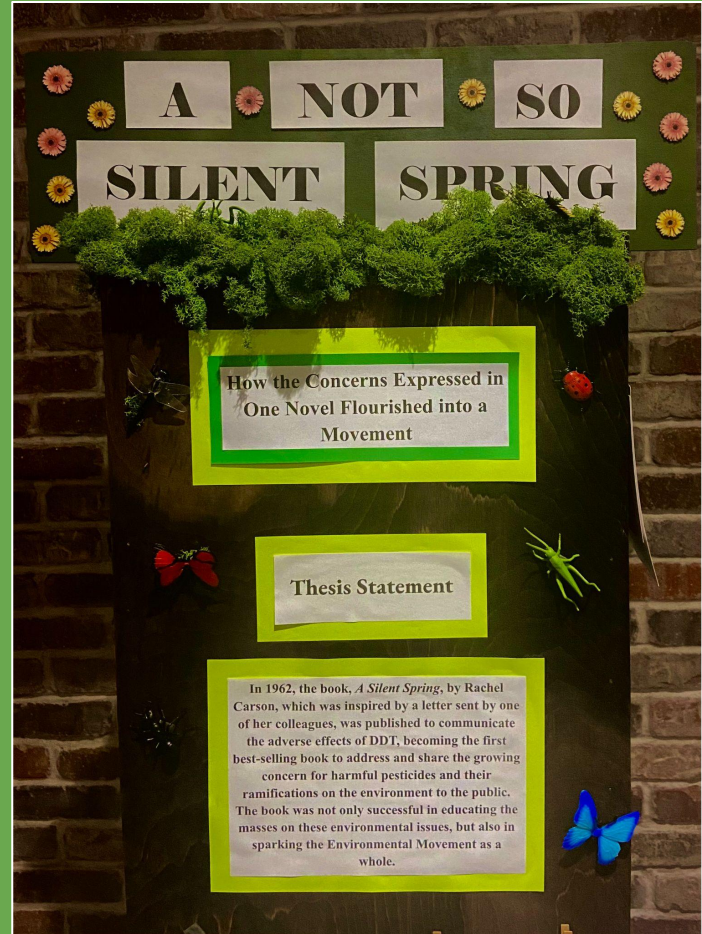
The image we used from this website was a graphic explaining action potential. We used this in our scientific background.



# Full Exhibit



# Top Panel 1 Photo



# Top Panel 1 Text: A Not So Silent Spring

How the Concerns Expressed in One Novel Flourished into a

Movement

Thesis

In 1962, the book *Silent Spring* by Rachel Carson, which was inspired by a letter sent by one of her colleagues, was published to communicate the adverse effects of DDT, becoming the first best-selling book to address and share the growing concern for harmful pesticides and their ramifications on the environment to the public. The book was not only successful in educating the masses on these environmental issues, but also sparking the Environmental Movement as a whole.

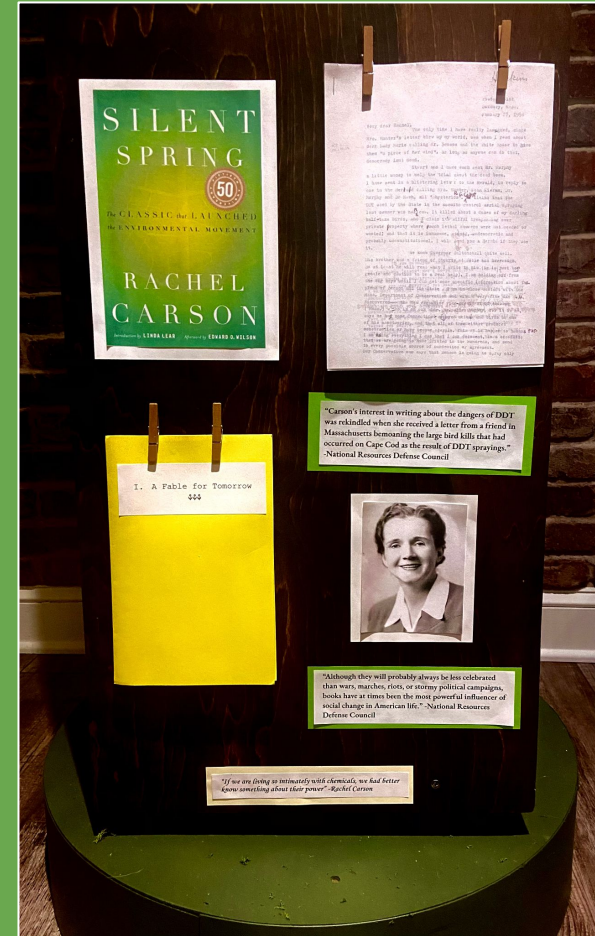


# Bottom Panel 1 Photo



## Source Credit Text

- *A Silent Spring*, Rachel Carson, 1962
- Letter, Olga Huckins, 1958
- “A Fable for Tomorrow,” Rachel Carson, 1962
- Rachel Carson, Fish and Wildlife Service



## Bottom Panel 1 Text

“Carson’s interest in writing about the dangers of DDT was rekindled when she received a letter from a friend in Massachusetts bemoaning the large bird kills that had occurred on Cape Cod as the result of DDT sprayings.” -NRDC

“Although they will probably always be less celebrated than wars, marches, riots, or stormy political campaigns, books have at times been the most powerful influencer of social change in American life.” -NRDC

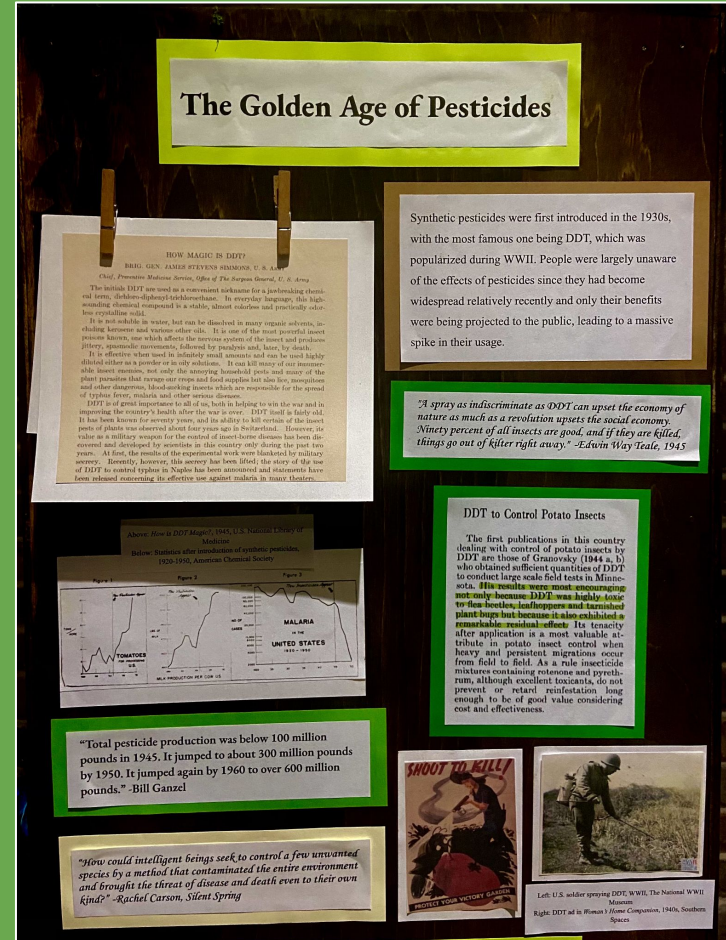
*“If we are living so intimately with chemicals, we had better know something about their power”*  
-Rachel Carson

# Top Panel 2 Photo



## Source Credit Text

- *How is DDT Magic?*, U.S. National Library of Medicine, 1945
- American Chemical Society Website, statistics after introduction of synthetic pesticides, 1920-1950
- Southern Spaces, DDT ad in *Woman's Home Companion*, 1940s
- The National WWII Museum, U.S. soldier spraying DDT, WWII



# Top Panel 2 Text: The Golden Age of Pesticides

Synthetic pesticides were first introduced in the 1930s, with the most famous one being DDT, which was popularized during WWII. People were largely unaware of the effects of pesticides since they had become widespread relatively recently and only their benefits were being projected to the public, leading to a massive spike in their usage.

*"A spray as indiscriminate as DDT can upset the economy of nature as much as a revolution upsets the social economy. Ninety percent of all insects are good, and if they are killed, things go out of kilter right away."* -Edwin Way Teale, 1945

**"Total pesticide production was below 100 million pounds in 1945. It jumped to about 300 million pounds by 1950. It jumped again by 1960 to over 600 million pounds."** -Bill Ganzel

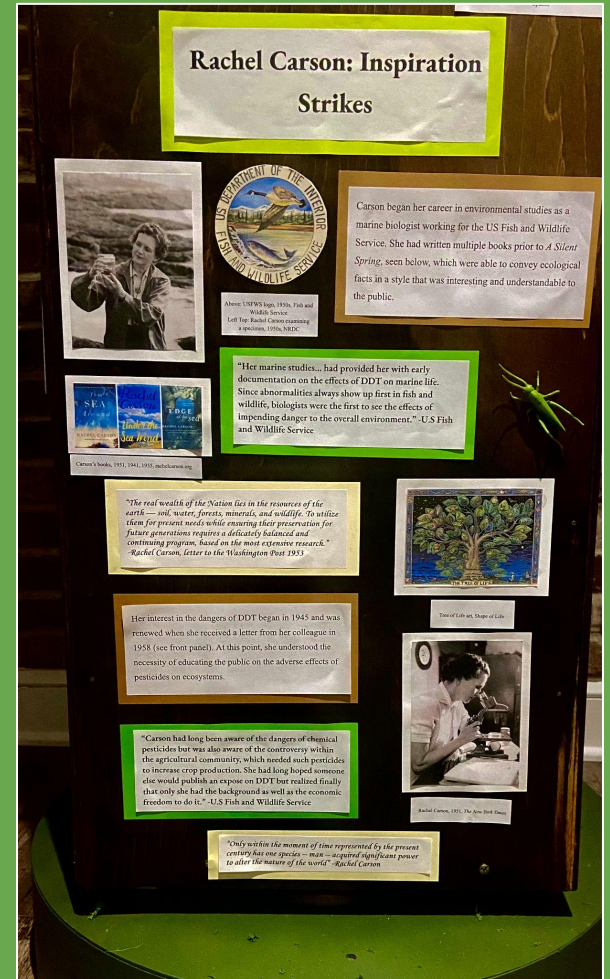
*"How could intelligent beings seek to control a few unwanted species by a method that contaminated the entire environment and brought the threat of disease and death even to their own kind?"* -Rachel Carson

# Bottom Panel 2 Photo



## Source Credit Text

- NRDC Article, Rachel Carson examining a specimen, 1950s
- Rachel Carson, Carson's books, 1951, 1941, 1955
- Fish and Wildlife Service, USFWS logo, 1950s
- Shape of Life, Tree of Life Art
- *The New York Times* Article, photo of Rachel Carson, 1951





## Bottom Panel 2 Text: Rachel Carson: Inspiration Strikes

Carson began her career in environmental studies as a marine biologist working for the US Fish and Wildlife Service. She had written multiple books prior to *A Silent Spring*, seen left, which were able to convey ecological facts in a style that was interesting and understandable to the public.

“Her marine studies... had provided her with early documentation on the effects of DDT on marine life. Since abnormalities always show up first in fish and wildlife, biologists were the first to see the effects of impending danger to the overall environment.” -U.S Fish and Wildlife Service

*“The real wealth of the Nation lies in the resources of the earth — soil, water, forests, minerals, and wildlife. To utilize them for present needs while ensuring their preservation for future generations requires a delicately balanced and continuing program, based on the most extensive research.” -Rachel Carson, letter to the Washington Post 1953*

Her interest in the dangers of DDT began in 1945 and was renewed when she received a letter from her colleague in 1958 (see front panel). At this point, she understood the necessity of educating the public on the adverse effects of pesticides on ecosystems.

“Carson had long been aware of the dangers of chemical pesticides but was also aware of the controversy within the agricultural community, which needed such pesticides to increase crop production. She had long hoped someone else would publish an expose on DDT but realized finally that only she had the background as well as the economic freedom to do it.” -U.S Fish and Wildlife Service

*“Only within the moment of time represented by the present century has one species -- man -- acquired significant power to alter the nature of the world” -Rachel Carson*



## Top Panel 3 Text : The Publication of *A Silent Spring*

*A Silent Spring* was published on September 27, 1962 and immediately exploded. Carson's intention in writing her novel was to bring awareness to the adverse effects humans can have on the environment in an attempt to trigger change. She was successful as evident in the six million copies that have been sold to date.

"*Silent Spring* was effective and constructive in focusing our attention. We weren't looking. We were looking primarily at the desirable aspects of these things, and you need to look at the whole profile." -Alex Martin, pesticide scientist

"She tapped into fears that were growing with the general public already. The 60s was a time when the general population began to question government and big industry more, rather than just accepting things as they were." -Kezia Enzley

"*This book was enormously influential, it changed everything, it changed the way we thought about pesticides*" -Berill Johnson, read book in 1964

"*We've heard the benefits of pesticides ... We have heard a great deal about their safety, but very little about the hazards, very little about the failures, the inefficiencies ... so I set about to remedy the balance there.*"  
-Rachel Carson

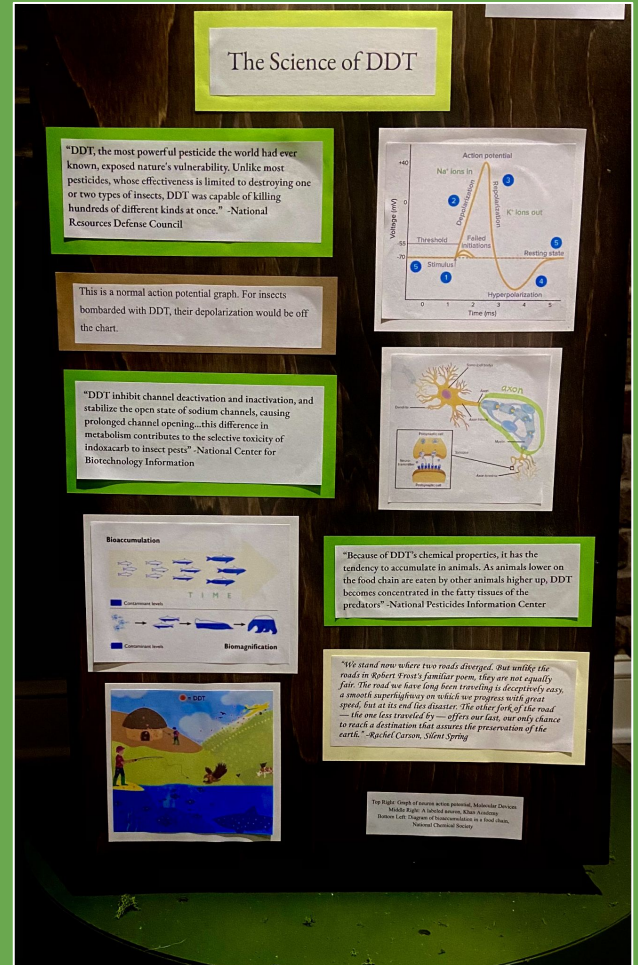
"The public debate moved quickly from *whether* pesticides were dangerous to *which* ones were dangerous, and the burden of proof shifted from the opponents of unrestrained pesticide use to the manufacturers."  
-NRDC

# Bottom Panel 3 Photo



## Source Credit Text

- Graph of neuron action potential, Molecular Devices
- A labeled neuron, Khan Academy
- Diagram of bioaccumulation in a food chain, National Chemistry Society
- Bioaccumulation of DDT in an ecosystem, National Chemistry Society



## Bottom Panel 3 Text: The Science of DDT

“DDT, the most powerful pesticide the world had ever known, exposed nature's vulnerability. Unlike most pesticides, whose effectiveness is limited to destroying one or two types of insects, DDT was capable of killing hundreds of different kinds at once.” -National Resources Defense Council

This is a normal action potential graph (right). For insects bombarded with DDT, their depolarization would be off the chart.

“DDT inhibits channel deactivation and inactivation, and stabilizes the open state of sodium channels, causing prolonged channel opening” -National Center for Biotechnology Information

“Because of DDT's chemical properties, it has the tendency to accumulate in animals. As animals lower on the food chain are eaten by other animals higher up, DDT becomes concentrated in the fatty tissues of the predators” -National Pesticides Information Center

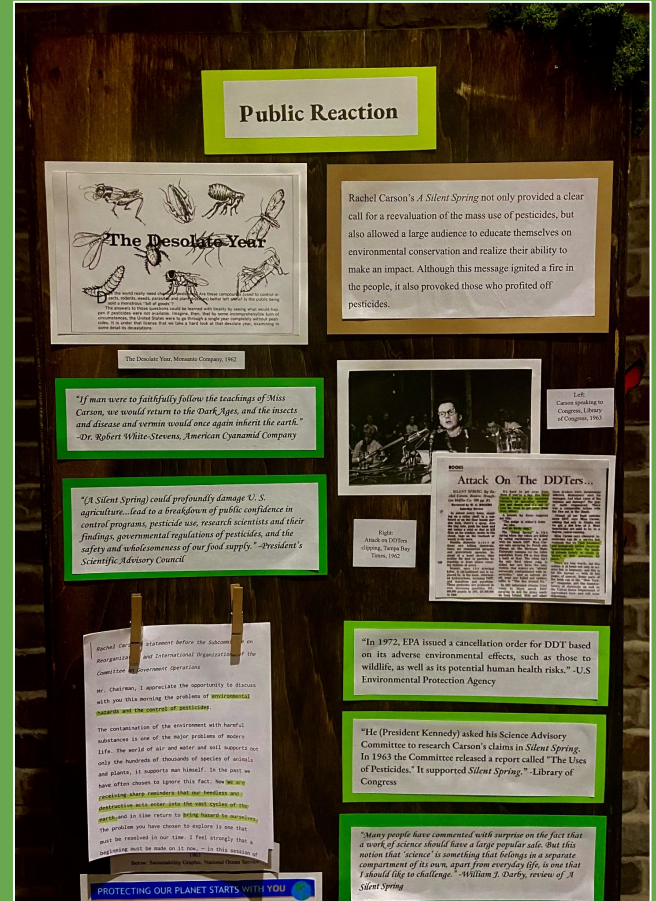
*“We stand now where two roads diverged. But unlike the roads in Robert Frost's familiar poem, they are not equally fair. The road we have long been traveling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster. The other fork of the road — the one less traveled by — offers our last, our only chance to reach a destination that assures the preservation of the earth.”*  
-Rachel Carson

# Top Panel 4 Photo



## Source Credit Text

- Monsanto company's parody of "A Fable for Tomorrow," International Society for Environmental Ethics, 1962
- Rachel Carson testifies to Congress, Library of Congress, 1963
- Newspaper clipping from *Tampa Bay Times*, newspapers.com, 1962
- Carson's statement to Congress, Iowa State University, 1962



## Top Panel 4 Text: Public Reaction

Rachel Carson's *A Silent Spring* not only provided a clear call for a reevaluation of the mass use of pesticides, but also allowed a large audience to educate themselves on environmental conservation and realize their ability to make an impact. Although this message ignited a fire in the people, it also provoked those who profited off pesticides.

*"If man were to faithfully follow the teachings of Miss Carson, we would return to the Dark Ages, and the insects and disease and vermin would once again inherit the earth."* -Dr. Robert White-Stevens, American Cyanamid Company

*"(A Silent Spring) could profoundly damage U. S. agriculture...lead to a breakdown of public confidence in control programs, pesticide use, research scientists and their findings, governmental regulations of pesticides, and the safety and wholesomeness of our food supply."* -President's Scientific Advisory Council

**"In 1972, EPA issued a cancellation order for DDT based on its adverse environmental effects, such as those to wildlife, as well as its potential human health risks."** -U.S Environmental Protection Agency

**"He (President Kennedy) asked his Science Advisory Committee to research Carson's claims in *Silent Spring*. In 1963 the Committee released a report called "The Uses of Pesticides." It supported *Silent Spring*."** -Library of Congress

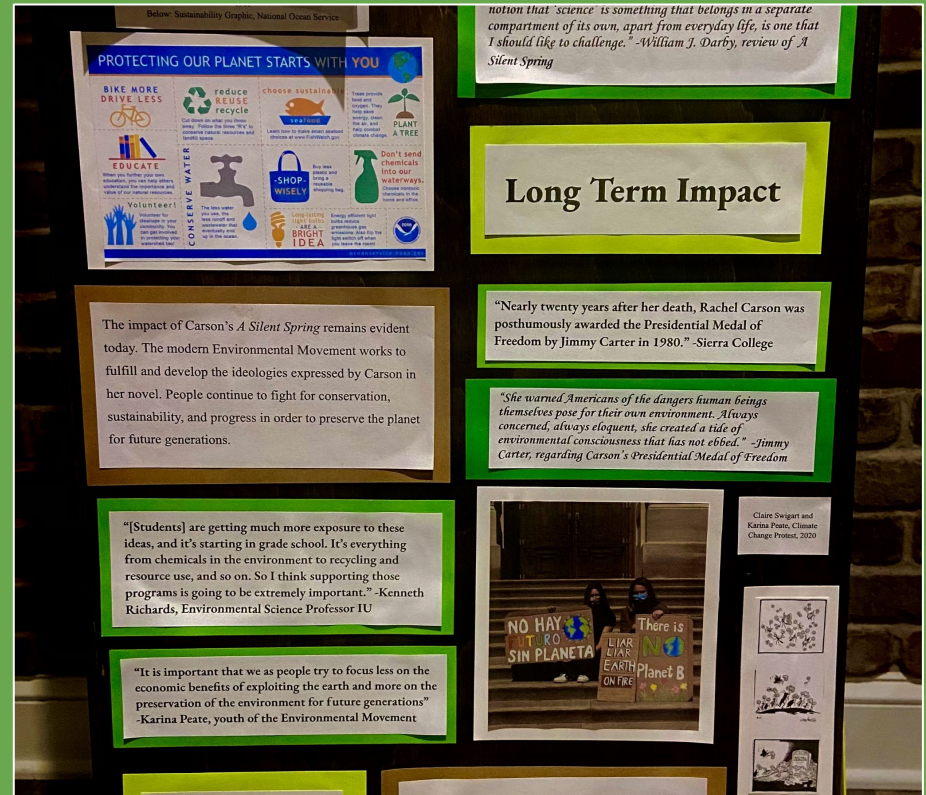
*"Many people have commented with surprise on the fact that a work of science should have a large popular sale. But this notion that 'science' is something that belongs in a separate compartment of its own, apart from everyday life, is one that I should like to challenge."* -William J. Darby, review of *A Silent Spring*

# Middle Panel 4 Photo



## Source Credit Text

- Sustainability Graphic, National Ocean Service
- Climate change protest, Claire Swigart and Karina Peate, 2020





# Middle Panel 4 Text

The impact of Carson's *A Silent Spring* remains evident today. The modern Environmental Movement works to fulfill and develop the ideologies expressed by Carson in her novel. People continue to fight for conservation, sustainability, and progress in order to preserve the planet for future generations.

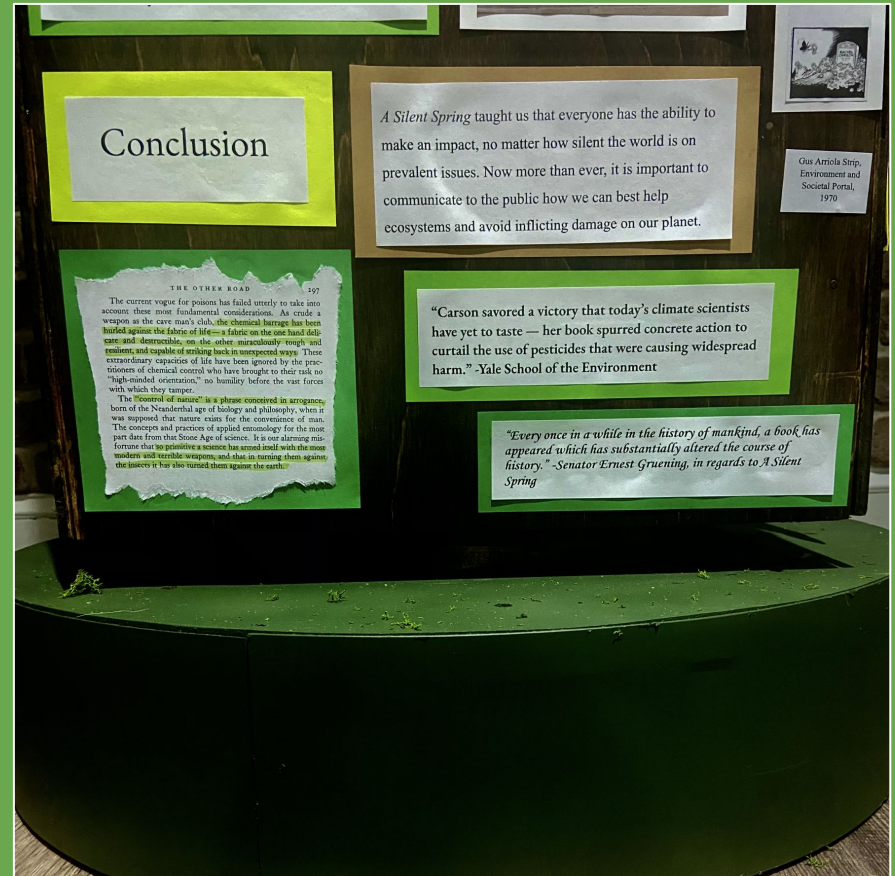
“Nearly twenty years after her death, Rachel Carson was posthumously awarded the Presidential Medal of Freedom by Jimmy Carter in 1980.” -Sierra College

*“She warned Americans of the dangers human beings themselves pose for their own environment. Always concerned, always eloquent, she created a tide of environmental consciousness that has not ebbed.” -Jimmy Carter, regarding her Presidential Medal of Freedom*

“[Students] are getting much more exposure to these ideas, and it's starting in grade school. It's everything from chemicals in the environment to recycling and resource use, and so on. So I think supporting those programs is going to be extremely important.” -Kenneth Richards

“It is important that we as people try to focus less on the economic benefits of exploiting the earth and more on the preservation of the environment for future generations” -Karina Peate, youth of the Environmental Movement

# Bottom Panel 4 Photo



## Bottom Panel 4: Conclusion

*A Silent Spring* taught us that everyone has the ability to make an impact, no matter how silent the world is on prevalent issues. Now more than ever, it is important to communicate to the public how we can best help ecosystems and avoid inflicting damage on our planet.

“Carson savored a victory that today’s climate scientists have yet to taste — her book spurred concrete action to curtail the use of pesticides that were causing widespread harm.” -Yale School of the Environment

*“Every once in a while in the history of mankind, a book has appeared which has substantially altered the course of history.” -Senator Ernest Gruening, in regards to A Silent Spring*

