Orange County Oil Spill Communications Toolkit

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Why the Orange County Oil Spill?

A core goal of the "Environmental Advocacy Through Story" course is to provide skills that are career-oriented and help students make a difference in the world. We saw an opportunity with this environmental event close to home to not only learn about how to apply the communications tools from the course, but also to help local organizations improve and unify their communications approach under an advocacy framework.

Much of environmental communications is reactionary. The climate action movement strives for solutions that are proactive, but this is difficult when research on psychology, societal interactions, and communication requires specific events to occur for study. We had the unique opportunity to investigate and prepare materials for an environmental event very close to home in Fall 2021, the Orange County Oil Spill, near Chapman University's campus in Orange, CA. This event presented a challenge to the "Environmental Advocacy Through Story" course participants, as oil spills are often perceived as "accidents" instead of a direct consequence of our global reliance on fossil fuels contributing to climate change. We took this challenge to apply strategic framing concepts from class that were centered on climate change communications, and broaden our understanding of how additional storytelling elements could facilitate greater environmental literacy around oil spills. Students applied their cultural knowledge unique to the local Orange County area and its communities to present materials specific to this environmental event and its impacts. However, we hope that some of the resources can be strengthened and broadened for use in other settings later. Lastly, we also hope this is the start of a local action research framework for environmental communications that centers the input of communities in directing future areas of study. We look forward to working with any and all that this toolkit reaches, and welcome new colleagues to visit www.seacrlab.com/communitypartners to engage further.

About the Approach: Strategic Framing

Strategic communications are necessary for scientific topics intersecting with socio-political issues. For topics of the environment, this means that direct delivery of scientific facts is never recommended. Why? We all interact with information from a unique perspective shaped by our societal values, prior knowledge, privileges, and biases. No matter our best intentions, presenting only the "facts" allows our audience to impart their own assumptions about the process of science, the scientists themselves, and the influence of society on science. Therefore, we must integrate strategy into the presentation of scientific information. We must acknowledge that science is political, and not free of bias. Most importantly, we must approach environmental communication with the goal of improving science literacy structured for increasing community self-advocacy and civic action.

Framing allows diverse peoples to converge on a shared understanding of an issue or topic through the activation of cultural values and literal "frames of mind" (Price et al. 1997, Miller 2000). Framing allows us to reach across aisles or further solidify boundaries, depending on its targeted use. Studies have shown that if communicators can activate the appropriate positive

frame, our audiences are more likely to connect with and be open to the implications of the information we are sharing (Morton et al. 2011, Bilandzic et al. 2017).

Cultural values are often shared, yet still diverse and numerous among stakeholder groups living in the same area (Corner et al. 2015). Their intentional use in science-based messaging can bring diverse peoples together for a common cause and establish trust between the communicator and their audience (Jacobson et al. 2019). Cultural values also serve the additional purpose of reminding the audience why they should care about the topic (Pike et al. 2008). This allows an opportunity for the communicator to provide new information that the audience would not normally be receptive to.

Effective explanation requires yet again a "common currency" of knowledge, so that audience members may activate the same neural networks, or existing connections between ideas, in response to a communicator's phrase (Goffman 1974). Since environmental research is often a new subject for most audiences, it is important to use metaphors to explain the science in a way that people can understand and that connects human actions to the issue (Duit 1991). Leading the audience through a step-by-step process also lessens the burden on communicators, given a prescribed framework for presenting new information. Having this framework also leads easily into framing the conversation for action and advocacy.

Communication without solutions strips stakeholder groups of their agency and investment in a problem (Swim et al. 2018). All stakeholders impacted by the Orange County Oil Spill deserve an informed voice in the decision-making process that impacts their lives and livelihoods (Bodin 2017). When people begin to understand how they fit into their socio-ecological-political environment, they usually want to see themselves as part of a harmonious solution that benefits their community (Swim et al. 2018).

All of the pieces presented as part of this toolkit follow the same communication framework outlined in Figure 1. Each communication element has been researched from existing literature in peer-reviewed journals, cultural myths and legends, and generational knowledge in the local area. Therefore, each piece has a value, metaphor, explanatory chain, and solution. Also, each piece intentionally avoids unproductive cultural models, or "the swamp", which are ideas that audiences may hold rooted in fear or misinformation. For more information on the research behind each piece, please refer to the annotated document with their explanations and sources. **We felt it was important to include this background information about our process, so that we could begin a conversation with local organizations about why strategic framing is necessary and offer Chapman's future research collaboration on efforts they embark on in the future.**
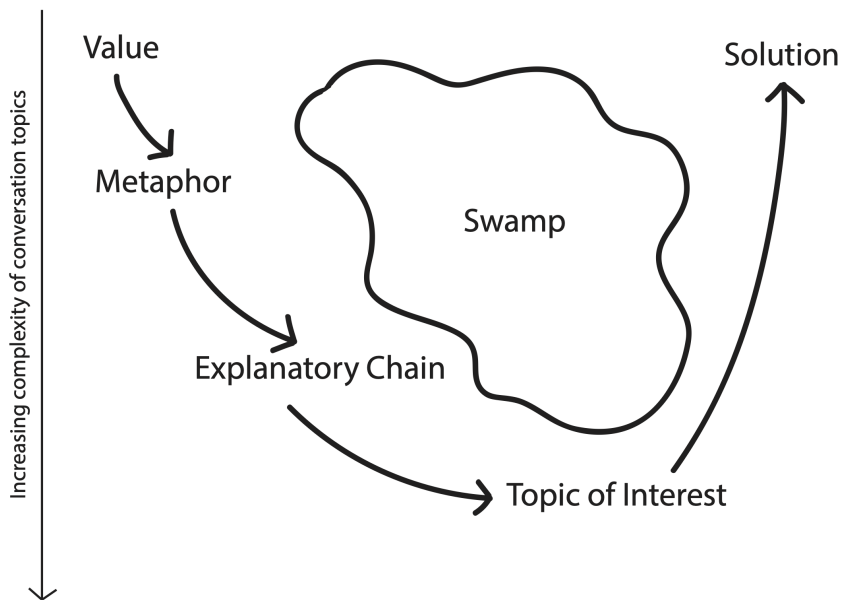
Figure 1. Values-based strategic framing communication framework from the National Network for Ocean and Climate Change Interpretation, presented in Bonnano et al. (2021), on which this toolkit is based. Original figure by R. Tanner.

Intended Audience

We acknowledge our status, as individuals in higher education, as trusted messengers is limited to few communities in the general public. However, individuals in higher education *do* have trusted status with environmental non-profits and government agencies. Research has shown that scientists, or those who are perceived as using expert scientific knowledge as a communication platform, are less likely to gain the trust of their audience through shared values (Volmert et al. 2013, Bales et al. 2015). Therefore, our most impactful work must be through other messengers who have already established trust with more diverse audiences.

We have included two maps, the first gives an example of overall power dynamics in intersectional environmental issues and the second shows how the Orange County Oil Spill has impacted our targeted audiences with regard to the different types of societal impacts an oil spill can have. We show the power map (Figure 2) to illustrate who has decision-making power and direct influence over specific communities. This is one of the most important considerations when we identify trusted messengers for specific audiences. Not only must they share values and a common background, but one must hold more power so that the voices of the other can be elevated. We show the environmental impact map (Figure 3) to illustrate how the audiences targeted in this piece may interact with the oil spill, and therefore what kinds of scientific topics and resulting solutions will be most relevant.

Figure 2. Stakeholder power map for environmental issues at large. This map is an example, not exhaustive, generated by the students of ENV 329 "Environmental Advocacy Through Story" and created by R. Tanner. Important to note is that marginalized groups and nature have very little power over other entities (no arrows going towards others). However, these are arguably the most important and impacted groups with climate change effects.
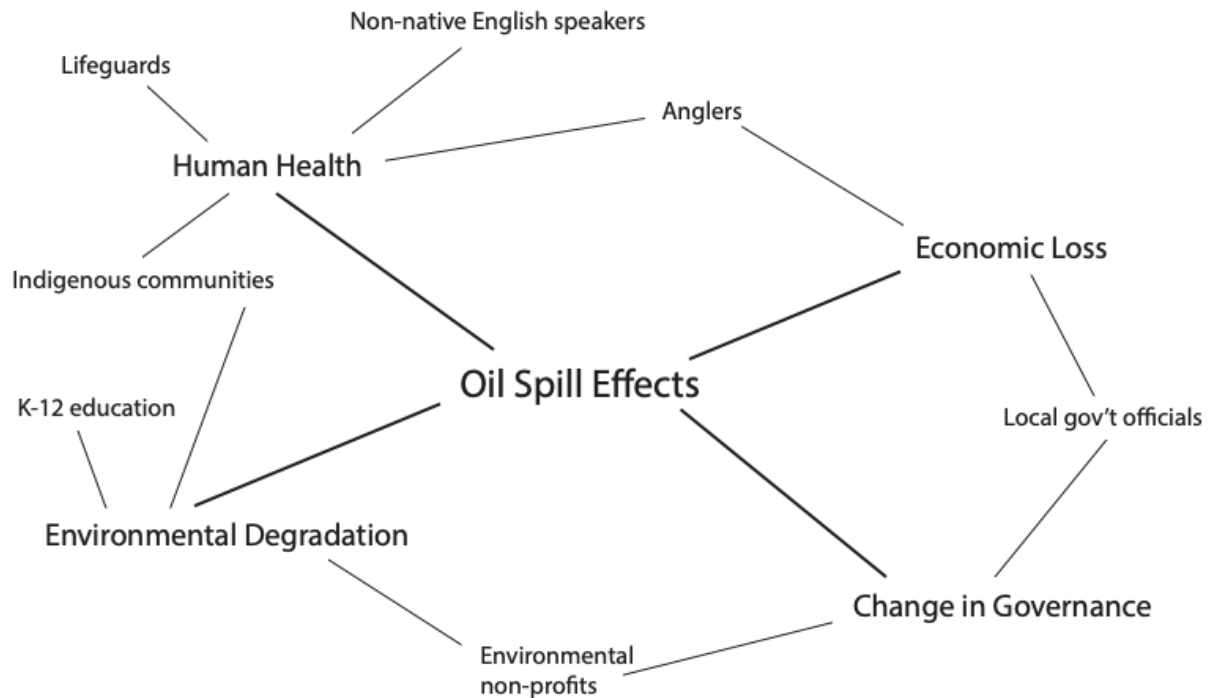
Figure 3. Environmental impact map for the Orange County Oil Spill in October 2021. This map is an example, not exhaustive, generated by the students of ENV 329 "Environmental Advocacy Through Story" and created by R. Tanner. Important to note that we specifically selected audiences to highlight in this toolkit based on representing the full breadth of societal impacts imposed by an environmental event like the oil spill. Environmental communication should not solely focus on environmental degradation because of the importance of intersectionality with social justice issues in climate action.

Limitations and Additional Resources

The limitations of this toolkit are imposed by the timeline on which we delivered the product. In less than two months, there was not sufficient time to conduct the primary social science research on whether the unique recommendations here are effective with their intended audiences. **The production of a peer-reviewed toolkit of this scope is at minimum a two-year endeavor.** However, the *approach* by which these recommendations were generated is a tested social science framework. We are happy to conduct follow-up research studies in partnership with local groups interested in reaching a particular audience over the next few years. This toolkit was also the first attempt by the students of ENV 329 "Environmental Advocacy Through Story" to apply the knowledge they developed as part of the course, at the

same time they were gaining that knowledge. Their tenacity and dedication to applying their knowledge for this cause is remarkable. Lastly, we have leaned heavily on techniques tested for climate change communications by the National Network for Ocean and Climate Change Interpretation, and as we have stated above, we are happy to further test these approaches for oil spills specifically if there are interested parties for collaboration.

The sources cited above are a good start for investigating specific aspects of our approach, but we highly recommend reading the work of George Lakoff. Dr. Lakoff is a pioneer in this field, and a champion for the use of framing in political advocacy. His book, "Don't Think of an Elephant", is a good place to start with his highly-regarded writings. We also recommend the numerous trainings provided by the National Network for Ocean and Climate Change Interpretation: from a free asynchronous online course to a months-long training with multiple instructors, there is something for everyone. Please see more at www.nnocci.org.

If specialized training or presentations and/or further research is of interest to your group, we encourage you to directly contact Dr. Tanner at www.seacrlab.com or rtanner@chapman.edu.

Acknowledgements

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Authors' Positionality Statements

Amy Asmussen

I identify as a female, white American raised in the East San Francisco Bay Area. I am a third-year student at Chapman University, where I am pursuing a Minor in Environmental Studies. I have been a resident of Orange County for three years. Having lived most of my life near coastal communities on the west coast, I have a personal connection to the protection and management of California's beaches and ocean, and the communities who rely on them. As I am a proficient English speaker, I have not experienced firsthand the challenges presented by language barriers and inaccessibility of information for non-native English speakers. While I have no professional environmental or climate research experience, I was a digital content creator for Sharing Hope Africa, a nonprofit developing sustainable agriculture programs in Mozambique and Eswatini. I am skilled in media creation, document design, and digital communication for versatile audiences. In pursuit of a career in environmental and climate communication for nonprofits, I was thrilled for the opportunity to produce document translations and advisories for non-native English speaking communities.

Ruby Baldwin-Smith

I identify as a white female, and I was born in Northern California and raised in Central Oregon and Las Vegas. I am currently attending my second year at Chapman University studying Business Administration and Environmental Studies and I am passionate about corporate sustainability. I have not personally been affected by the adverse effects of oil spills, but I have seen the impact it has on its ecosystem and community. I also have not conducted research specifically on oil spills. Although I do not have much experience surrounding oil spills, I have experience in environmental education, communication literature and supporting sustainability at events and festivals. While living in Southern California, I have adapted and learned from my community, and it has driven me to make an impact. I hope that this tool kit helps our community understand the issue at large and also support them in their solutions.

Max Burrous

I am a first generation college student in an Environmental Science and Policy major with a minor in economics. I grew up in Marin county just north of San Francisco and early on in my education I learned about responsible stewardship to preserve our environment. However, I do acknowledge that I was very lucky to receive the science and sustainability education I did, and understand that many people aren't given that opportunity. Through this project I was hoping to help expand other people's knowledge on the impacts of oil spills and other events that harm our environment and eventually us too. While I do have a strong understanding of environmental and climate science, I am not an expert in biology and the effects of things like oil on human and wildlife health. Nevertheless, I do have a strong connection with the beaches in Orange County and feel the need to advocate for the communities around there.

Maya Cheav
I identify as a first generation Cambodian-American from Long Beach, California. I am a senior environmental science and policy major at Chapman University with a minor in english (creative writing emphasis). I am passionate about environmental justice, climate change, intersectionality, and science communication. I have some science/environmental communication experience related to creating social media posts, informational posters, blogs, and newsletters for various environmental nonprofits I have worked at. Though I am an environmental science student and have had the privilege of having a college education, I am not an expert on oil spills, nor have I ever directly faced the effects of them. However, I've lived in areas near oil spills and seen the effects of it on local wildlife and the environment. I used to work at the Bolsa Chica Conservancy in Huntington Beach, which is where the Orange County oil spill occured. I also grew up visiting the Bolsa Chica Ecological Reserve and feel connected to the wildlife and environment that live in that habitat.

Christian Grevin
I identify as a white male and have spent my whole life in Southern California. This has caused me to form deep connections with my local community and environment. This connection to my community is in large part what drove my research within this oil spill toolkit. I am currently a senior at Chapman University studying political science and history. I have spent an extensive amount of time working in social science research labs focusing on topics like disaster preparedness in California and Americans' fears. In this research I have helped organizations like CAL FIRE and the National Weather Service find effective ways to communicate with Californians on issues of extreme weather events and disaster pre
paredness. I have never partook in environmental research and have little background knowledge on oil spills aside from basic information shared in the news. This lack of natural scientific background has driven me to help others that are in a similar position gain access to and understanding of environmental issues that are impactful upon our community. I also had a desire to help connect community members with effective ways they can mitigate the effects of oil spills with the guidance of environmental non-profits.

Lexi Hernandez
I identify as a Chicana, second generation Mexican American woman with roots in both the Inland Empire and Orange County. I am an Intersectional Environmentalist, Student, and researcher who studies at Chapman University. I have not conducted research on oil spills in Orange County, but have experienced environmental injustice and conducted research on environmental injustices across the US and within Orange County. Additionally as a woman of color I am also culturally connected to much of the BIPOC (specifically mexican-american communities) in OC who make up a majority of residents in the county. However my experiences are not nearly reflective of all of the experiences of BIPOC in Orange County so I instead uplift existing suggestions by other BIPOC based on their experiences or provide avenues to connect with others so their perspectives can be voiced by their community leaders. I have worked within a nonprofit setting for the past year and a half, and have worked previously with local government officials, so I do speak directly to strategies those in nonprofits or local

government positions can use to more effectively bring BIPOC communities into solution making processes.

Kate Hartshorn

I identify as a female white American student at Chapman University. I am a Junior at Chapman, studying Environmental Science and Policy. I was born and raised in Denver, Colorado, and have only been in the Southern California area for the past three years. My move to California has opened my eyes to new communities and new issues that are a direct result of climate change. I am not an expert in what it is like to be raised in these communities, nor am I formally involved with oil spill research. While I am not an expert in these areas, I am learning and listening as best I can to those communities so that I can better understand ways I can use my privilege to advocate for them. I am also learning framework tools to connect audiences with scientifically accurate information about climate change. My educational experience with environmental science and environmental justice has given me a base knowledge of the intersectional impacts of climate change. Through this toolkit, and working with my peers I hope to broaden community understanding and to use my privilege to reach groups who have a direct influence on mitigating the harms of oil spills.

Holland Hatch

I am a first year student at Chapman University majoring in Environmental Science and Policy. I am from Lancaster, Pennsylvania. I am interested in the teaching and learning processes of environmental issues. Environmental education was not accessible or available to me until I reached the college level. I have limited knowledge on effective teaching methods, specifically on oil spills themselves. I also have no firsthand experiences with oil spills and have not conducted any research on oil spills prior to the development of this toolkit. While I am a student myself and understand my personal methods of learning, I lack experience and expertise in understanding the learning processes of K-12 students in general. My hope is that students will be able to receive effective communication and learning tools to better understand oil spills and their impacts.

Ben Jensen

I am a Non-Bi/Genderfluid German-American and have lived my whole life in Southern California and currently a sophomore Environmental Science and Policy major at Chapman University. For as long as I can remember, whenever we would travel up and down the coast of Southern California, I've seen countless offshore oil rigs. Now recognizing the destructive power oil spills have on our coast and lives I want to help facilitate a shift away from fossil fuel extraction and burning in any way I can. I have dived heavily into carbon capture technologies, but have no prior experience with oil spills. I have no research experience as of yet and working on this toolkit enables me to help create a strong foundation for further research into reducing oil spills and the adverse effects they pose to us and the environment. I strive to improve the general scientific knowledge of the public and want to stress the importance of communicating science to non-scientists. Informing the public on general scientific principles and climate change and connecting to values can drive the change to reverse the effects of the human population on our environment.

Hilary Lee

I'm a first-generation Chinese immigrant with roots in Orange County, Singapore and Hong Kong. I'm also a 4th year Strategic Corporate Communication major at Chapman University with minors in Chinese and Anthropology. Having grown up in Singapore and Orange County my whole life, I've always lived near the coast and enjoyed going to the beach, but have never done any formal research on oil spills, marine biology or environmental policy. My areas of expertise include developing messages for target audience, copywriting, media literacy and strategic communication. My privilege as a middle-class woman in a place like Orange County means that I might not always be attuned to the ways in which oil spills affect coastal small businesses, marginalized and lower-income communities. However, in the process of this communication kit, I hope to use my communication skills to better educate elected officials on how to develop messages and solutions that link short-term issues like oil spills to long-term solutions that tackle climate change.

Kelly Ly

I identify as a female, first generation Vietnamese-American from Houston, Texas. I am a senior Biological Sciences major at Chapman University with a minor in Environmental Science. I've been interested and been learning about marine ecosystems and how marine creatures differ from each other in aspects like mechanics and physiology. I have not conducted research on oil spills prior to this toolkit. I do have experiences with oil spills (for example, the Galveston Bay oil spill in 2014) but have not been directly affected by the oil spills. Although I am a biology student with the privilege of a college education, I am not an expert on the oil spill and their socio economic impacts. My goal in this toolkit is make it more accessible for organizations to effectively communicate to the community about the effects and solutions to oil spills.

Berkana McDowell

I'm a 3rd-year student at Chapman University, with a double major in Environmental Science and Policy and Peace Studies, with an additional minor in Studio Art. I am a German-American BIPOC female, with mixed ethnic and cultural roots around the world. I was raised in Hawaii, with substantial Hawaiian and Blackfoot Indigenous Knowledge integrated into my upbringing. I graduated from an International Baccalaureate school, where I was raised speaking German and French, allowing an opportunity to connect to cultures around the world. Identifying with environmental issues has always been natural in my life, I because of the culture of Hawaii. Growing up, I experienced the impacts of a number of environmental issues including erosion, sea-level rise, oil spills, ocean acidification, and more. That being said, I have limited expertise in the biological basis behind these issues specifically and their corresponding implications, but plan to further my education to have a holistic viewpoint. These experiences have led to my current passion in the environmental communications field, which will be furthered by research I'll be participating in the Spring. Moreover, I feel well-versed in intersectionality, ocean acidification, conflict management, the integration of traditional knowledge systems in our dominant culture, and communicating through creative and artistic methodologies. I intend to help make environmental issues understandable and accessible to a diverse set of the population, to help people better engage in their environments, and make sound

environmentally-friendly choices. Additionally, I'd like to help amplify the ideologies, knowledge, and values of BIPOC community members, to ensure all voices are heard.

Eva Stanton

I identify as a female, Latinx, white individual with roots in the Paiute Native American community from Southern Orange County. While I have cultural ties to facets of BIPOC cultures, I must recognize my intense privilege in which I was brought up as well as what I continue to benefit from. I am white passing and have not experienced a majority of the difficulties of my non-majority peers. I was raised in Southern Orange County in a lower middle class family and I am currently a senior studying at Chapman University with majors in Environmental Science and Policy and Anthropology as well as minors in Political Science and Data Analytics. In addition to my full time studies, I have on campus jobs as a peer advisor, research assistant, and student employee of Chapman's Office of Sustainability. My experience with environmental communication has been through my research in health disparities relating to outdoor access in South LA with Chapman faculty member, Dr. Jason Douglas. Additionally, I have experience creating content for my peers having to do with sustainability through the Office of Sustainability in the form of social media posts, blog posts, emails, and event programming. However, I must acknowledge that I am not an expert science communicator and am still growing in my skills. I have grown up five minutes away from the ocean and have always felt connected to coastal ecosystems, surfing, helping clean up beaches, and protesting for environmental justice. While the oil spill has not affected me in the same way as other individuals, I have nonetheless experienced the difficulties associated with not having access to the ocean because of pollutants. Specifically, I can recall the difficulties surrounding pollution in the waters of "Baby Beach" in Dana Point where for a span of approximately five years coastal access was prohibited because of pollutants. My goal of this project is to learn more about how to make an impact within marginalized communities through science communication, intending to include these individuals in the communication about intersectional environmental justice and spread awareness about these topics.

Richelle Tanner Ph.D.

I identify as a female, mixed heritage Chinese-white first generation American with roots in the Pacific Northwest. I am a researcher of environmental communications (among other natural sciences topics), a professor at Chapman University, and the 2019-2021 Science Director at the National Network for Ocean and Climate Change Interpretation. I have not conducted formal research on oil spills and have few personal connections to the audiences targeted in this piece. I am not an expert in what it is like to live in the world as the audiences we hope to reach, including but not limited to people of color and individuals deprived of environmental literacy. Lacking this experience, I look to my students and their trusted sources and honor the experiences of these marginalized groups. The work presented in this toolkit is the labor of students in my "Environmental Advocacy Through Story" course in Fall 2021, of which I am immensely proud of and thankful for. Therefore, I limit the scope of this presented work to a preliminary exploration of effective communication techniques in these distinct communities for the Orange County Oil Spill. I cannot speak to their direct effectiveness, only to the efficacy of the methodological framework under which they were conceived. Where possible we cite the

knowledge of others who have expertise, whether in the scientific literature or in generational knowledge. The goal of this work is to raise awareness about how audience specificity in communications matters, and orient local non-profits along a unified communications framework based in social science research that centers hope instead of fear, advocacy for marginalized groups, and community-level solutions for climate action. More about my research and further learning opportunities can be found at www.seacrlab.com.

Hannah Waldorf
I am a senior at Chapman University studying Environmental Science & Policy and Political Science who identifies as a white female. I grew up in Los Angeles in a small coastal community and from a young age, I have witnessed the oil rigs that line the shores of Southern California. I now understand the dangerous nature of these oil rigs and the social and environmental impacts they can have if ruptured. The 2021 Orange County oil spill exemplified just that which I was able to experience as a current resident of Orange County. My privilege as a Chapman student has allowed me to study the spill and has given me the opportunity to work on this toolkit. Prior to this research, I have not examined oil spills in an academic setting. The process of creating this tool kit has allowed me to explore effective science communication techniques and use my skills to better educate politicians on oil spill policies.

Veronica Warner
I am a female, first-generation Taiwanese-American third-year student at Chapman University studying Environmental Science and Policy with a double minor in Peace Studies and Mandarin Chinese. I am originally from the suburbs of Chicago but have moved multiple times in my life, specifically to San Diego, California, and Taipei, Taiwan. Currently, I reside in Orange County. Ever since I was a sophomore in high school, I have been passionate about the environmental sciences and recently discovered a new curiosity for intersectional environmentalism. I enjoy learning about these topics and want to utilize the knowledge I have learned to impact people's lives positively. I am not an expert on oil spills, nor have I done scientific research focusing on its ecological, psychological, and societal impacts. However, working on this toolkit these past few months has opened my eyes to the harmful impact oil spills have on not only flora and fauna but also on marginalized communities. I aim to use this oil spill toolkit to sharpen my communication skills to inform marginalized communities about this environmental consequence. My goal is to continue to learn and spread awareness about environmental topics including oil spills, intersectional environmentalism, climate change and environmental justice.

HOW NON-PROFITS CAN CONNECT CITIZENS WITH CIVIC LEADERS

STEPS TO CREATING EMAIL TEMPLATES:

1. The first important step to writing an email to one's local representative is creating a subject line that is direct. This allows civic leaders to quickly get the general point of the email they're about to read. Make sure that if geography is key to the topic being discussed, it is inclusive enough to fall within the purview of the civic leader being reached
   a. Ex: "2021 Orange County Oil Spill"
      i. For example we choose to broaden the spill from Huntington Beach to Orange County so that government officials outside of the city will feel connected to and obligated to do something about the spill
2. Next, one should address their representative by name. It's important to show that you know who you're reaching out to. It displays that one has done their research and believes the person they are emailing is possible in affecting change.
   a. Ex: "Hello Congresswomen _____,", "Hello City Council Member _____,", "Hello Mayor _____,"
3. The first part of the email should be where the individual introduces themself and establishes themself as a constituent. Civic leaders listen to those who elected them, which is why it's important to establish that relationship early on in the email, the official will be more receptive to what's being said.
   a. Ex: "My name is _____ and I'm a resident of _____."

4. After establishing a connection with the representative, one can begin to explain why they're reaching out. This is the part of the email that will look vastly different with each topic.

   a. Ex: "I'm reaching out to you about _____. This has been an issue for me because _____. The problem has impacted our community by _____."

   b. In this part of the email one should provide background information on the issue in case the representative does not already know about it or does not have the same information on the topic.

   c. Another key aspect of this section is to make a connection between the issue and how it's not only affecting oneself but the community as a whole.

   d. In providing context on the topic and connecting it to how it's impacting the leaders community, the representative is better able to understand and care about the issue.

5. Solutions to the problem should be provided towards the end of the email in order to guide the representative to actual action that can be made.

   a. Ex: "I believe that passing a law that _____ will help to solve the issue our community is facing.", "_____ company needs to be held accountable for the damage they've done to our community."

   b. The solution will look different for each problem and this is where nonprofits can really help make a difference. Citizens don't often know what can be done to solve seemingly complex environmental issues, but non-profits can help provide direction to citizens which will in turn provide direction for local governments.

6. Next, one should inquire about the representative's point of view on the topic. In doing this one is inadvertently asking for the representative to acknowledge and respond to their email.

   a. Ex: "How do you feel about _____?", "What do you believe can be done to combat _____?", "How do you plan to vote on legislation that can alleviate _____?"

7. Finally, one should end an email by showing appreciation to one's representative and providing a way to further contact them. Thank them for taking the time to read one's email and for all the work they do for the community. By ending on a positive note the representative will be more likely to want to help with the issue and to respond back. It's also good to establish a positive relationship with one's representative so that further collaboration and communication can occur.

   a. Ex: "Thank you for taking the time to read my email and think about the issues facing our community. The work you've done for our town has been so impactful, and I hope you can make a difference in this area as well. I hope to discuss this issue with you further and make sure action is taken to address it. Please feel free to reach out to me at this email address to continue the conversation."

TIPS FOR WRITING EMAILS:

1. Make sure to include your name or your organization's name or address at the top of the message.
   a. The representative is going to prioritize emails from people who live in their district.
   b. By making it clear that you live in their district, the representative will take the time to read the email.
2. Be Human
   a. Sharing feelings or talking about experiences you or the organization has felt or dealt with while handling an incident/accident.
      i. Inclusion of these can separate your or your organization's messages from bulk or standardized messages from other interest groups.
   b. Do not intimidate your representative
      i. You will seem desperate and not taken seriously.
   c. Use I statements to make the email more personal
3. Be Brief
   a. Representatives and their staff are busy. Use two or three paragraphs to tell them what you want them to know.
      i. You don't need to make every argument relating to the issue, only do the strongest points.
4. Be Clear
   a. Be specific on what item that is concrete and can be acted upon.
      i. For example, a bill being voted on.
5. Time the Message
   a. Send emails when there is legislation that is being considered or debated.
      i. Your email will only make an impact when there is legislation, otherwise it would be ignored.

EMAIL TEMPLATE FOR ECONOMICALLY DRIVEN CIVIC LEADERS:

Email Subject: 2021 Orange County Oil Spill

"Hello City Council Member _____,

My name is _____ and I'm a resident of _____. I'm reaching out to talk to you about the Oil Spill that just occurred in Huntington Beach on October 2nd. It's alarming that over 25,000 gallons of oil leaked into the ocean from the Amplify Energy pipes. The oil spill has impacted our local aquatic ecosystems by disrupting pH levels and killing wildlife. Access to the beach has been cut off impacting the recreational activities of our community members. Fishing has been halted along the coast, which has impacted many of our residents who rely on the activity to get food. The clean up of the oil spill has begun to require vast amounts of manpower, equipment, and ultimately money. It's disheartening to think about all the ways the spill has impacted our community members and the vast amount of tax money required to clean it up. This is especially true when considering how the leak was caused by repeated damage to the pipes from ship anchors, which could have been avoided.

I believe that passing laws that require stricter maintenance of oil pipes would help to limit the avoidable causes, like pipe damage, of oil spills. If we pass these laws and devote tax money to such maintenance we can avoid devastating spills that halt the activities of our community. How do you plan to vote on legislation that will require stricter regulations for offshore oil drilling? I would love to hear what else you believe should be done to help prevent further spills from occurring?

Thank you for taking the time to read my email and think about the issues facing our community. The work you've done for our town has been so impactful, and I hope you can make a difference in this area as well. I hope to discuss this issue with you further and make sure action is taken to address it. Please feel free to reach out to me at this email address to continue the conversation.

 Sincerely,
 _____"

EMAIL TEMPLATE FOR ENVIRONMENTALLY CONSCIOUS CIVIC LEADERS:

Email Subject: 2021 Orange County Oil Spill

"Hello City Council Member _____,

My name is _____ and I'm a resident of _____. I'm reaching out to talk to you about the Oil Spill that just occurred in Huntington Beach on October 2nd. We must protect our local community and ecosystems that we depend on. The oil spill that occurred in our own backyard has had negative impacts on the local coastal ecosystems, which is worrisome as the ocean is the heart of our global climate system. Just like the heart helps circulate blood and regulate the bodies temperature, the ocean helps to circulate heat, moisture, and other climate elements in our system. The spilling of oil changes pH levels, which in turn causes shifts in the ocean's chemistry. Oil spills leads to wildlife mortality as they ingest the toxic oil. Both pH changes and wildlife mortality disrupts this delicate system. For this reason, the pursuit and use of fossil fuels is problematic as they perpetuate climate issues we're currently facing.

I believe that passing laws that divest tax payer money from fossil fuels and place them towards reusable energy source not only help avoid oil spills but address the larger issue of fossil fuel emissions. If we pass these laws and invest tax payer money into reusable sources we can help avoid further devastating oil spills in our community and help ensure we are doing our part to curb climate change. How do you plan to vote on legislation that will divest government spending on fossil fuels? I would love to hear what else you believe should be done to help prevent further spills from occurring?

Thank you for taking the time to read my email and think about the issues facing our community. The work you've done for our town has been so impactful, and I hope you can make a difference in this area as well. I hope to discuss this issue with you further and make sure action is taken to address it. Please feel free to reach out to me at this email address to continue the conversation.

 Sincerely,
 _____"

Non-profit audience: guide to framing

Main Goal:
- What scientific aspect of the oil spill are you trying to communicate about?
  - Impact on community
    - Health
    - Habitat
    - Food

- What social/political goal do you have?
  - Empower environmental non-profit organizations in ways that allow them to communicate and motivate both the local residents and civic leaders to collaborate
    - This goal is what drove us to create a tool that can be used by nonprofits to train their members on creating email templates for citizens or be given to citizens to create the emails themselves. These emails are a way for civic leaders and citizens to get connected on issues like the Orange County Oil Spill

Audience (Nonprofit) Details:
- What is common knowledge to your audience?
  - Generally how oil spills affect the environment
    - Depending on the focus of the nonprofit, they may not have background knowledge on the impacts of oil spills
  - Extensive knowledge on outreach as that's a large focus of these organizations
    - That being said, they may not know how to reach out to more specific audiences, which is where our classes who toolkit comes in use

- Where does your audience fall in the power structure of the local area?
  - They do have power as they can garner community support and attention to create change; also they can use their power to lobby for change; more powerful than local residents who combine power to create these organizations
  - But they are not as strong as for profit organizations (oil companies) in the area who can use their capital to obtain greater influence; they do not have as much power as the government itself (no enforcement/authority)

- How can you use this opportunity to empower your audience?
  - Give these organizations the tools and knowledge to reach audiences they've either neglected or struggled to connect with in the past, so that they can truly foster collaboration in the community to effectively tackle the oil spill.
  - Our email template can give some nonprofits new information they may have not known about, a document that can be used in staff training, and a tool used for connecting citizens with civic leaders
  - Our external facing piece can help nonprofits serve as a bridge between citizens and civic leaders

Non-profit audience: guide to framing

- What makes your audience cohesive (leading into shared values)?
  - Do you need to further split your audience into distinct groups?
    - As a whole, nonprofit organizations have a goal of changing societies in favor of the environmental goals of said nonprofit.
      - A shared goal of environmental nonprofits is to preserve the environment hence no splitting of audience is need

Values:
- Where can you look to find out about what your audience values? Think about what makes them cohesive, culturally. What resources can you find from their shared interests? Hints:
  - Cultural myths/legends/fables have lessons and values inherent in them
  - Look up action items from group meetings within your audience (workshops, board meetings, PTA meetings, etc.)
  - What does your audience donate money to, on the whole?
  - How has your audience been systematically marginalized and what has that done for their trust of environmental messengers?
    - Nonprofits all have mission statements that can be easily accessed on their websites, which give us insight into the values they hold
    - You can then compare the similarities and differences between these mission statements to find the values that are held across these organizations
    - That being said environmental nonprofits share a goal of preserving the environment and working towards protection and management of our habitats
      - With Orange County nonprofits they are focused on the local habitats our community relies on, like the coastal habitats impacted by the oil spill

- Cross reference what you've discovered with peer reviewed literature on more general cultural/societal values to make sure you haven't made them too complicated/niche

Metaphors:
- What is your starting common knowledge?
  - Oil shouldn't be spilling in the first place, but it happens
  - Harder to contain oil spills in the ocean than on land
  - Long time recovery period for ecosystems as it is hard to clean up

- What scientific aspects do you think you will need to get across in order to complete your message?
  - Hint - you will just have to pick ONE. You can't make this too long otherwise you will lose people and your explanatory chain will be too complicated trying to incorporate multiple scientific phenomena.

- ○ Impacts of the oil spill → difficulty in responding to and cleaning the oil spill, as well as the importance of the environment (ocean) that's harmed by these spills
- ○ At first we started with a metaphor on internal bleeding that we developed ourselves but realized that this metaphor would cause people to think negatively which is harmful when discussing environmental issues as it can lead to a sense of helplessness and inaction. After this realization we decided to switch to the climate heart metaphor tested by the National Network for Ocean and Climate Change Interpretation. The climate heart metaphor has been found to be effective when communicating about climate change. The metaphor allowed us to communicate the impact of oil spills on oceans and climate change generally to environmentally focused civic leaders who would innately care about these impacts. The group focused on elected officials delve more into this relationship.

- ● You can use external sources for inspiration, but this is a creativity moment - you have to come up with the metaphors! Extremely helpful if you can find somewhere it has been used before, and was effective. If you can't, explain the logical steps and how it connects to the value(s) you've chosen.

Explanatory Chains:
- ● There will be fewer sources here, but likely lots of editing to get wording clear
- ● Follow logical steps and do not leap over cognitive gaps
  - ○ Helpful for you to annotate the document where you think these common cognitive gaps are and why this communication piece addresses them
- ● The explanatory chain was used in our email templates to provide a background on the impact that oil spills have on the ocean and local coastal habitats. We discussed the ways the ocean's complex chemical balance are thrown off, pH levels are warped, and wildlife is harmed due to oil spills. We used sources (which can be found in the annotated bibliography) to provide a short step by step breakdown of these more complex topics like pH levels for civic leaders who may not have the scientific knowledge needed to fully comprehend the issue.

Solutions (Action):
- ● Remember: scale of the solution must match the scale of the problem
- ● Research whether your community engages in any solutions for related issues (environmental, social, political) so that you can scaffold on top of them
- ● Get creative looking for solutions! They do not have to be ecological (clean up) or civic (vote), they can be anything as long as they are community-level
- ● Advocacy/Demanding Change
  - ○ Means through which solution can be obtained
    - ■ Connecting with local civic leaders and companies through calls, emails, and letters pushing for change
      - ● Change → suggesting maintenance of oil pipes, frequent check-ins, divest from fossil fuels, restrictions on coastal drilling
        - ○ Prevents avoidable damage (e.g. anchors hitting pipelines)

- - - Moves society away from environmental harmful habits,specifically burning of fossil fuels
  - Nonprofit organizations
    - Lobbying government and companies
      - Presenting solutions
    - Templates for representation
      - Script for phone calls, template for emails
        - Email template → provide to people
        - Script for phone calls → provide to people
    - Connecting individuals with their representatives and companies
      - Contact information and avenues to reach these actors
      - Making it more accessible to connect with representatives, policy makers, and companies.
        - Important as less time it takes, more people that will participate
  - Community
    - Reaching out to local gov and companies to make their desires known so that these actors can listen to what their constituents/customers want
      - These actors will listen to the community more than non-profits; as the people have power over them (they either elect or fund them)
      - That being said, Nonprofits can provide the solutions once the government or companies are looking for them after hearing that the community wants change
    - It is for this reason that we selected email templates as a solution to the oil spill crisis
      - Nonprofits can step in and create a tool to be sued by citizens to engage with civic leaders on the oil spill; in this engagement, citizens will provide solutions given to them by nonprofits that address both the oil spill and larger climate change issues
      - This information coming from citizens rather than nonprofits will be impactful and can help lead civic leaders to create concrete change

Non-profit audience: annotated bibliography

Advocacy, Part of The Psychologist's Guide to. n.d. "How to Write a Letter or Email to Your Member of Congress." *Https://Www.Apa.Org*. Retrieved November 15, 2021 (https://www.apa.org/advocacy/guide/letter-email).

This resource was used to help write a template for civic leaders by providing tips for writing, organizing, and addressing civic leaders. The American Psychological Association has compiled an extensive list of important information to incorporate into emails to civic leaders which is key for advocacy. This served as the main guiding document for our external facing piece.

Anon. n.d. "How Does an Oil Spill Affect The Environment?" *Sciencing*. Retrieved November 15, 2021 (https://sciencing.com/oil-spill-affect-environment-4616883.html).

This source provided background information on how oil spills impact coastal ecosystems with regards to habitat, wildlife, and coastlines. We needed this piece to provide background information on the oil spill to civic leaders in our email templates.

Bush, Richard. 1992. "Survival of the Nonprofit Spirit in a For-Profit World." *Nonprofit and Voluntary Sector Quarterly* 21(4):391–410. doi: 10.1177/089976409202100406.

This source helped us understand the role of nonprofit organizations and how they can link locals and residents to their civic leaders. This source gave us necessary information to understand the function of nonprofits as we have had experience in that realm.

Nikolic, Sara J. S., and Tomas M. Koontz. 2008. "Nonprofit Organizations in Environmental Management: A Comparative Analysis of Government Impacts." *Journal of Public Administration Research and Theory* 18(3):441–63. doi: 10.1093/jopart/mum022.

We used this source as a reference on the impact of nonprofit organizations and governmental policy. This source gave us necessary information to understand the function of nonprofits as we have had experience in that realm.

Press, The Associated. 2021. "The California Oil Spill Was about 25,000 Gallons — One-Fifth What Officials Feared." *NPR*, October 14.

This source gave us a greater understanding of the Orange County Oil Spill, specifically an estimate of how much oil was spilled. We used this in our email templates to show civic leaders that the citizens emailing them have knowledge on the topic. This is important as it provides civic leaders with the context they need on oil spill as well as shows them that those reaching out are knowledgeable on the issue.

National Network for Ocean and Climate Change Interpretation - NNOCCI (2016). Changing the Climate Conversation: All NNOCCI Reframe Cards. https://climateinterpreter.org/content/changing-climate-conversation-all-nnocci-reframe-cards

This source was extremely important for our metaphor of the climate heart. The National Network for Ocean and Climate Change Interpretation has done extensive research on which metaphors are effective when communicating about climate change issues. Considering we started with an unfounded and researched metaphor it was important we found and used one that has been extensively researched. The climate heart is one of them and fits well with our discussion of oil spills and the ocean, which is why we selected that metaphor. This piece

helped us in selecting an effective metaphor. NNOCCI has found this to be an effective metaphor to communicate with a broad audience which is why I used it in my communication piece. This will make it effective when communicating with a wide range of civic leaders.

National Network for Ocean and Climate Change Interpretation - NNOCCI (2017). Protection Refram Card. https://climateinterpreter.org/resource/protection-reframe-card

This source by NNOCCI provided us with the knowledge on the protection value that is effective in getting citizens to connect with and care about climate change issues. This value was used in our outward facing piece and helped us with the exact wording that would be effective. NNOCCI has found this to be an effective value to communicate with a broad audience which is why we used it in our communication piece. This will make it effective when communicating with a wide range of civic leaders.

National Network for Ocean and Climate Change Interpretation - NNOCCI (2017). Responsible Management Reframe Card. https://climateinterpreter.org/resource/responsible-management-reframe-card

This source by NNOCCI provided us with the knowledge on the responsible management value that is effective in getting citizens to connect with and care about climate change issues. This value was used in our outward facing piece and helped us with the exact wording that would be effective. NNOCCI has found this to be an effective value to communicate with a broad audience which is why we used it in our communication piece. This will make it effective when communicating with a wide range of civic leaders.

UNPACKING THE 2021 OC OIL SPILL

3.2 MILLION
PEOPLE LIVE NEXT TO OR NEAR WHERE THE SPILL OCCURRED.

144,000
Gallons of Crude Oil Leaked into the sea.

We must protect and preserve the habitats we depend on to create a balanced and thriving community.

SPILL FACTS

LOCATION:

Off the coast of CA, there are 4 oil platforms: Holly in Santa Barbara, Eva and Emmy in Huntington Beach and Esther off Seal Beach.

A pipeline from platforms Eva and Emmy was ruptured.

POTENTIAL CAUSE

Investigators have found evidence that a cargo ship caught the pipeline and dragged it across the sea floor.

THE ENVIRONMENTAL & HUMAN IMPACTS

It takes years, sometimes even decades, for oiled ecosystems to recover.

Spills on birds, fish and marine animals can cause neurological damage and death.

It threatens drinking water supplies & air quality.

It Increases risk of asthma and other respiratory diseases.

THE COMMUNITY IMPACTS

Taxpayers often foot the bill for cleanup because of law loopholes.

Beach closures lead to a decrease in tourism and threaten livelihoods of nearby small businesses.

Cancelling of major events like airshows due to unsafe conditions.

Flip over to learn about potential solutions.

The Issue at Large

At the end of the day, oil spills happens because oil pipes exist. Think of it like a water balloon:

A water balloon, on its own, doesn't necessarily pop unless thrown with enough force.

In the same way, these oil pipes are like oil-filled water balloons, waiting to pop and wreck environmental and economic disaster .

Together, we can better our community and seek solutions that will help us flourish.

Potential solutions

Short-term Approaches

Introduce legislation on regulations for checking old pipelines & making sure they are repaired.

Introduce legislation on a state & local level to include more regulations for cargo ships.

Long-term Approaches

Introduce federal legislation to include a more systematic/holistic approach to removing oil rigs.

Investing renewable energy sources - keep price of energy down, create more jobs, & more tourism.

SO, HOW CAN WE DO THAT?

Federal: Remove fossil fuel federal subsidies from budgets and swap in renewable energy sources.

State: provide local cities with budgets to overhaul their public transportation system (rail, buses, trains).

Local: Set up committees with reasonable time frames to investigate and plan for ways to build more robust public transportation systems paired with denser housing near these systems.

Elected officials: guide to framing

Our goal:
- Communicate to local government on oil spill & tools to make policy choices
  - Also on how to best communicate spill & action to residents

Main goal:
- What scientific aspect of the oil spill are you trying to communicate about?
  - How the spill impacts the short term/long term health of residents
- What social/political goal do you have?
  - Inspire movement to remove offshore oil rigs
  - Have cleaner policies moving forward
  - Develop awareness on what to do during oil spills

Audience details
- What is common knowledge to your audience?

What do officials know	What do residents know
- Oil rig licenses - Where the oil rigs are - Policy stuff - Basic understanding of what is going on	- General weather conditions in the area - Which officials/news outlets are communicating to them about oil spill - General info

- Where does your audience fall in the power structure of the local area?
  - Officials
    - Top
    - Communicate with federal/state government
    - Creating policies
    - Managing coasts
  - Residents
    - Low
- How can you use this opportunity to empower your audience?
  - Officials
    - Use this as an opportunity to show that residents/people in the area care about environmental issues
    - These decisions about an oil rig are linked to and impact the health of the communities you serve
    - Happier community = more time in office woot!
  - Residents
    - Power to the people
    - Show that their health/voice matters
    - You deserve nice beaches!
- What makes your audience cohesive (leading into shared values)?
  - Do you need to further split your audience into distinct groups?
    - Dependent
      - People give power to local officials
      - Local officials influence how people live

Elected officials: guide to framing

Values
- Where can you look to find out about what your audience values? Think about what makes them cohesive, culturally. What resources can you find from their shared interests? Hints:
  - Cultural myths/legends/fables have lessons and values inherent in them
  - Look up action items from group meetings within your audience (workshops, board meetings, PTA meetings, etc.)
  - What does your audience donate money to, on the whole?
  - How has your audience been systematically marginalized and what has that done for their trust of environmental messengers?
- Cross reference what you've discovered with peer reviewed literature on more general cultural/societal values to make sure you haven't made them too complicated/niche
- **48th congressional district**
  - George lackoff
- Values of Michelle Steel
  - https://steel.house.gov/media/press-releases/rep-steel-calls-ban-cargo-ships-orange-county-coast
  - Views of Energy & Environment
    - free-market approach to encourage innovations that will keep energy prices from skyrocketing and reduce our dependence on foreign sources of energy.
    - Bring Republicans to the table to fight against radical progressive climate proposals that would hurt our economy, American workers, and national security
    - Practical and exportable answers can be found in innovation embraced by the free market. Americans and the rest of the world want access to cheaper, reliable, and cleaner energy
    - With innovative technologies, fossil fuels can and should be a major part of the global solution
    - Reducing emissions is the goal, not reducing energy choices
- Values of Alex Padilla
  - https://www.padilla.senate.gov/newsroom/press-releases/padilla-urges-action-following-major-oil-spill-in-orange-county/
  - Supports ending off-shore drilling -- proposed West Coast Ocean Protection Act
  - Co-sponsored Green New Deal: clean water and air is a something everyone deserves
  - Committed to fighting existential threat of climate change
  - Introduced sweeping legislation to electrify our nation's school buses and protect over one million acres of public lands in California, increasing access to nature and preserving California's natural treasures for generations to come.
- Values of Dianne Feinstein
  - Shifting to a clean energy economy will save consumers money, avoid the worst effects of climate change and reduce our dependence on foreign oil.
  - https://www.feinstein.senate.gov/public/index.cfm/press-releases?ID=ED7BD4AE-AF79-4530-A62A-70131CE81303 - bill
- Some alternatives
  - Wind power would also generate an estimated 218,640 jobs, compared with 127,682 jobs from drilling, the report said.
  - http://www.takepart.com/article/2015/01/22/source-renewable-energy-could-create-more-jobs-and-power-offshore-drilling
- Ticking time bomb, band aid

- - o Hurting local economy, better in the long run - lasting impact on your community
      - o Economy boom - aesthetically, safety
  - Communication to Rep. Stella Outline
    - o Economic impact
    - o Safety/health

Value: Protection
- We must protect and preserve the habitats and ecosystems we depend on
- Showing concern for the welfare of others is the right thing to do
- Stepping in to ensure the people's safety and wellbeing
- Sense of agency protection means actively eliminating or reducing risks
- Sense of urgency lets be vigilant in shielding and safeguarding habitats and people from harm

Metaphor: Water Balloon
- The story we're telling: If oil rigs are left alone they can hold oil such as a water balloon holding water. However, one wrong move and the oil rigs can cause major environmental damages through oil spills. This can be compared to a water balloon in that once something pops it, it cannot be stopped-the damage is already done. These spills cause irreversible damage to our ecosystems.

Explanatory Chain:

What is the problem we want to highlight?
Along the coast of California, there are four offshore oil platforms: Holly in Santa Barbara County, Eva and Emmy in Huntington Beach and Esther off Seal Beach. On October 2nd of 2021, a pipeline from Platforms Eva and Emmy ruptured, spilling an estimated 144,000 gallons of crude oil into the Pacific Ocean.

What are the causes of this?

The cause of the leak has yet to be determined, however, it is believed to be due to a passing ship's anchor. Investigators have found evidence that a 1,200-foot cargo ship dragged its anchor and caught the pipeline and dragged it along the seafloor. The Coast Guard has found a 4,000 foot bend in the pipeline which is now considered "laterally displaced". The spill sent thousands of gallons of heavy crude oil into the ocean along Orange county and into protected marshland.

The oil spill has had a large impact on environmental wildlife with a large focus on birds and other animals. When crude oil spills onto birds, fish, and other marine animals it is highly toxic causing neurological damage, cancer, and death. It can take years or decades for oiled ecosystem to recover.
Crude oil does not only impact the environment, but has large consequences on human health. Breathing contaminated air can cause throat and nose irritation, dizziness, headache, nausea, and coughing. This is amplified in vulnerable populations such as older adults, children, and those with conditions like asthma. The toxins from spill can also make its way into the human food chain through contaminated fish. The health of the environment and the health of humans is linked.

Regardless of the anchor, the spill has revealed issues with the oil platform and pipes themselves. Regulations such as an automatic shut-off valve for leaks and proper decommissioning funds and procedures for these platforms often go systematically ignored. In the case of this pipeline, operators waited hours before shutting off the valve, due to lack of automatic shut-off equipment. Neglected and left there for decades, these oil and degrading pipes are essentially water balloons filled with oil, waiting to burst and wreck environmental disaster.

Taxpayers are often also the ones left to foot the bill when rigs need to be decommissioned. What often happens is when large companies like Exxon Mobil determine that an oil platform is not profitable enough, they sell it to a tiny shell company that eventually declares bankruptcy and leaves it to taxpayers to foot the bill and clean up the mess.

Solutions
- More systematic/holistic approach to removing oil rigs (and making sure oil companies pay for it b/c they are making billions of dollars and passing on)
- More regulations for checking old pipelines & making sure they are repaired
- More regulations for cargo ships
- Investing renewable energy sources so people don't have to rely on fossil fuels like oil and gas - keep price of energy down, create more jobs, & more tourism
    - Cleaner air, cleaner beaches = more tourism = more $

Carr, Kim & Natalie Moser. "Support For a Permanent Ban on New Offshore Oil, Gas Drilling and Similar Exploration Activities Off the Coast of California." *City of Huntington Beach, City Council Meeting Items Report,* **October 19, 2021.**

This source describes Huntington Beach's New Resolution to ban offshore drilling and similar explorations off the shore of California. We included this piece as an example model bill on how city council and local governments can take first steps to transitioning away from offshore drilling as a short term solution.

"Conservative Climate Caucus." *Congressman Curtis,* **https://curtis.house.gov/conservative-climate-caucus/.**

This source was used as a value research source. It discusses the conservative climate caucus and the perspective on the economy and the environment. It was used in respect of gaining a better understanding of conservatives' relationship with climate change and the oil spill.

"Feinstein Introduces Bill to Permanently Ban Offshore Drilling off West Coast." *United States Senator for California,* **27 Jan. 2021, https://www.feinstein.senate.gov/public/index.cfm/press-releases?ID=ED7BD4AE-AF79-4530-A62A-70131CE81303.**

This article details Senator Feinstein's perspective on offshore drilling. It was used as a value research source to better understand how to communicate the oil spill with this audience.

Gerda, Nick. "Pipeline Operator Had Problems with Shut-down Valves, Pressure Sensors in Years Leading up to Oil Spill." *Voice of OC,* **10 Nov. 2021, https://voiceofoc.org/2021/11/pipeline-operator-had-problems-with-shut-down-valves-pressure-sensors-in-years-leading-up-to-oil-spill/.**

This article gives the facts on the oil spill and also, background information regarding the oil rigs off of Orange County. It also contains sources to documents about the systematic system failures of the oil rigs. It was used as a source as it is communicated from an Orange County (OC) perspective. The audience of our piece is geared towards those who like the OC area.

Gerda, Nick. "'Ticking Time Bomb': Congress Considers Decommissioning Offshore Oil Rigs in Wake of OC Spills." *Voice of OC,* **15 Oct. 2021. https://voiceofoc.org/2021/10/ticking-time-bomb-congress-considers-decommissioning-offshore-oil-rigs-in-wake-of-oc-spill/**

This article follows a congressional proceeding on the OC oil spill that discussing who foots the bill for spills and the often neglected process of decommissioning rigs. We use this article to ground many of the issues of oil rigs directly to the consumer.

Genter, Julie Anne. "Marine Transport (Offshore Installations) Amendment Bill." *New Zealand Parliament Bills (proposed laws),* **June 20, 2019.**

This is a New Zealand bill that clarifies and strengthens accountability process of owners of offshore oil and gas installations by ensuring that they have the financial means to be held liable for clean-up and compensation from resulting oil spills. This is also an example bill we wanted to introduce as a first steps for holding oil companies and their associated shell companies accountable for the spills they cause. We introduce this bill as a short-term solution to ensure that spills do not occur as we work our way away from offshore drilling.

"Padilla Urges Action Following Major Oil Spill in Orange County." *Senator Alex Padilla,* **4 Oct. 2021, https://www.padilla.senate.gov/newsroom/press-releases/padilla-urges-action-following-major-oil-spill-in-orange-county/.**

This source was used as research to understand the values of Senator Padilla. It was used to gain background information of the opinions that Padilla holds in regards to the oil spill. From this, the piece was able to better be used for communicating to this audience.

"Programmatic Environmental Impact Statement for Oil and Gas Decommissioning Activities on the Pacific Outer Continental Shelf." *Safety and Environmental Enforcement Bureau,* **July 23, 2021.**

This impact statement from a federal agency government is a preliminary document on what components, research data and analysis are needed to push future decisions on oil pipelines. This statement serves as a great first step on how to use data and research to inform us why decommissioning pipelines have long-term positive environmental impacts

"Rep. Steel Calls for Temporary Ban on Cargo Ships off Orange County Coast." *Representative Michelle Steel,* **22 Nov. 2021, https://steel.house.gov/media/press-releases/rep-steel-calls-temporary-ban-cargo-ships-orange-county-coast.**

Similar to the last source, this was used to gain insight into Representative Steel's opinions on the oil spills. Additionally, the policies that Steel has tried to move forth with.

ORANGE COUNTY OIL SPILL

In order to protect our community, we ask that you refrain from swimming in or approaching affected areas until the oil is properly cleared

♥ HEALTH IMPACTS

Oil spills are like the secondhand smoke of the sea. Even though beach communities are not involved in offshore drilling it still affects those in the surrounding area through oil spills

Day of spill: OCT – 2 – 2021

1 2

Days until spill is clear

HUMAN HEALTH

Exposure to oil has been found to cause breathing problems, irritation to the skin and eyes, and even issues in brain function.

MARINE LIFE

Oil damages the fur and feathers of animals making them unable to control their temperature, exposing them the harsh environment. Also oil can contaminate fish and consuming these fish is harmful
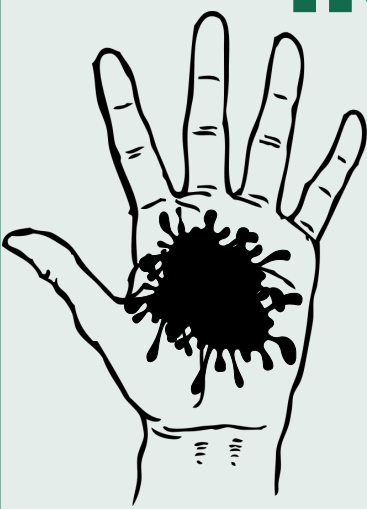
HOW LONG WILL THE OIL LAST ?

How long a spill lasts depends on the size of the spill and the type of oil spilled. Refined oil will slowly evaporate so small refined oil spills do not last vary long and minimal cleanup effort is needed. For large spills, an extensive cleanup is necessary to lessen the harm on the environment.
First, a barrier is setup around the spill to restrict spread, then the oil is removed.
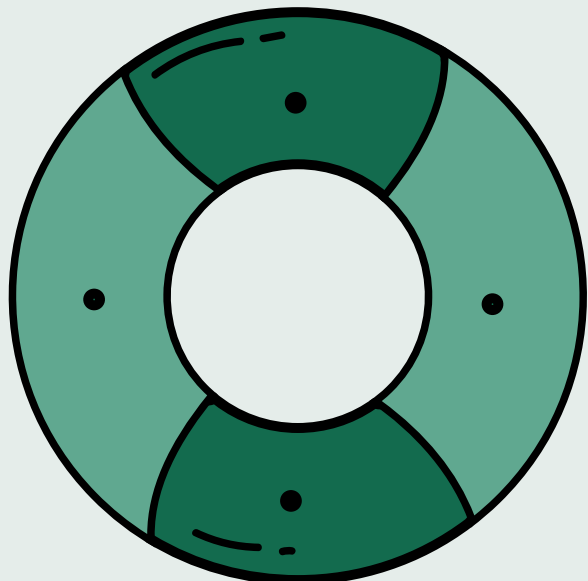
HOW TO IDENTIFY OIL

Oil forms a slick film on the surface of the water. Oil in the sand can be identified by rubbing the sand together between two hands, and if there is a black sticky residue that remains on your hands, then that is oil and you should report it immediately.
Remember to keep oil away from eyes and mouth and wash off as quickly as possible

HOW TO REPORT UNSAFE CONDITIONS

Remember to always check with the lifeguard if you are unsure of hazards

Contact OC Lifeguard:
949–276–5050

Lifeguards: guide to framing

Main goal:
- What scientific aspect of the oil spill are you trying to communicate about?
    - Protecting the community and environment.
    - Mitigating the effect of oil spills on the general public
- What social/political goals do you have?
    - Reducing the impact of oil spills on the general public's health

Audience details
- What is common knowledge to your audience?
    - Safety, conflict mitigation, enforcement
- Where does your audience fall in the power structure of the local area?
    - Below state officials but above the general public. They have the power to remove people from the area but not to warrant arrest or closing down public beaches
- How can you use this opportunity to empower your audience?
    - Show them that they have the ability to save lives and recognize harmful situations before they become a danger to beachgoers
- What makes your audience cohesive (leading into shared values)?
    - Do you need to further split your audience into distinct groups?
        - The members of our audience have similar goals, values, but have varying levels of power and abilities in the event of an oil spill so the audience likely will need to be broken up. Shared value of protection and management.
        - Separate into
            - Park rangers (management)
            - Coast guard (protection and power)
            - Lifeguards (protection)

Values
- Where can you look to find out about what your audience values? Think about what makes them cohesive, culturally. What resources can you find from their shared interests?
    - Protecting the community, Responsible Management

Metaphors
- What is your starting common knowledge?
    Oil is unsafe to beachgoers. Toxic in some way
- What scientific aspects do you think you will need to get across in order to complete your message?
    - The impact that oil spills have on health
    Oil spills are the second-hand smoke of the sea

Lifeguards: guide to framing

Explanatory Chains
- Oil is one of the most relied upon energy sources and companies choose to drill for oil because it the most profitable source of energy
- They are aware of the the adverse effects of oil pollution on our environment and human health
- When these companies have big leaks or spills they are minimally impacted, but everyone else in the surrounding area is harmed.
- People who have no connection to the oil companies take on the detriments of oil drilling while receiving little profits/positives
- Similarly with smoking, smokers choose to smoke because of the "profit" they get even though their second hand smoke can negatively affect the people around them
- People who choose not to smoke due to the health effects could still be impacted by the many respiratory defects associated with secondhand smoke
- People who smoke are not held responsible for the effects of secondhand smoke just as oil companies are not held responsible for the full effects of mining for oil
- When oil spills occur, the oil contaminates the air which is a health hazard to everyone
- Just as individuals choosing to smoke can harm those around them through second-hand smoke, corporations/individuals choosing to partake in a drilling activity can have adverse effects on the people around them through oil spills
    Oil is what is called a volatile chemical, which means it partially evaporates at room temperature. Oil vapor can be inhaled and damage the lungs, the liver and has been found to cause cancer

Solutions (Action)
- Remember: scale of the solution must match the scale of the problem
    - Advocate Give lifeguards to gain the authority to close public beaches in emergencies
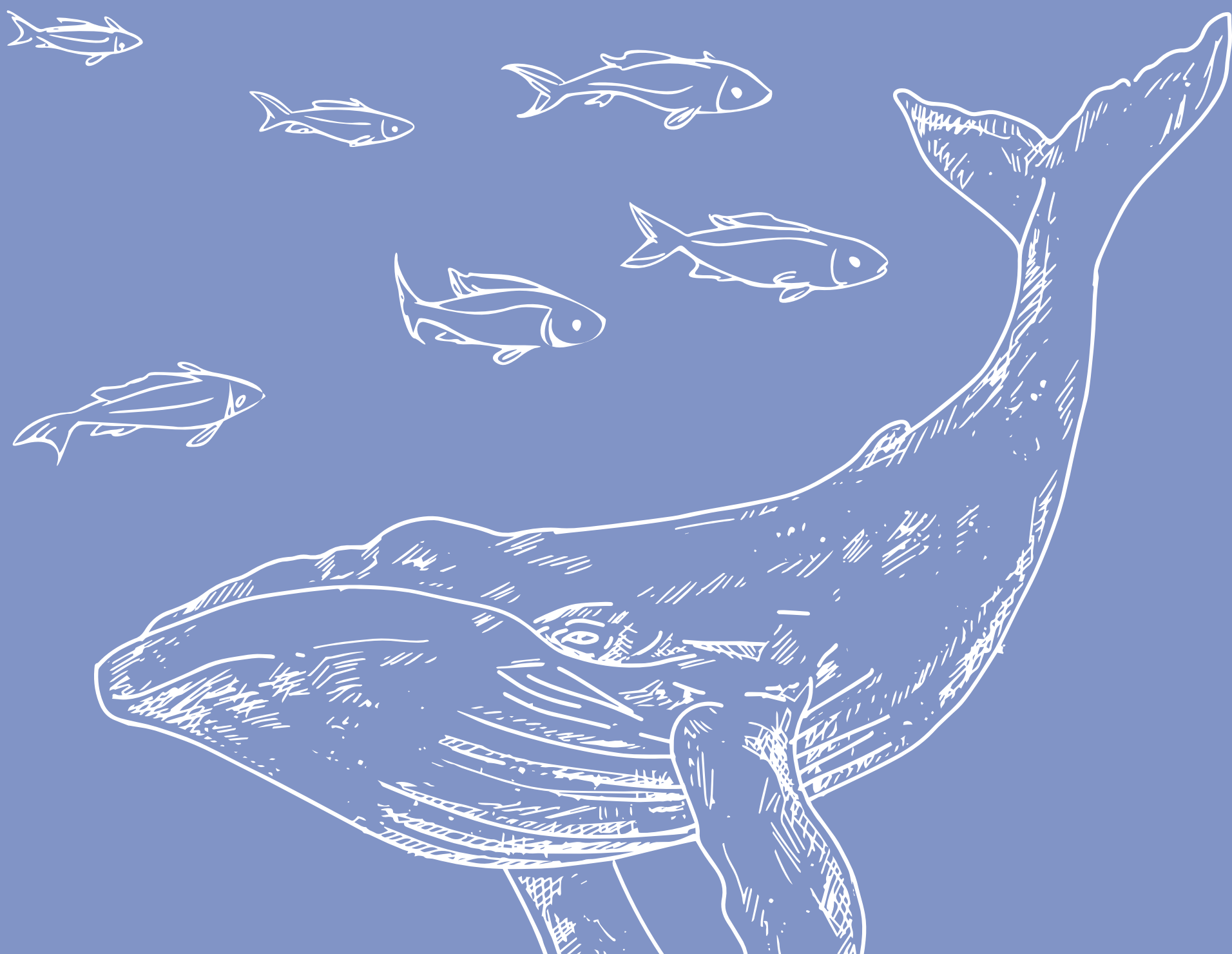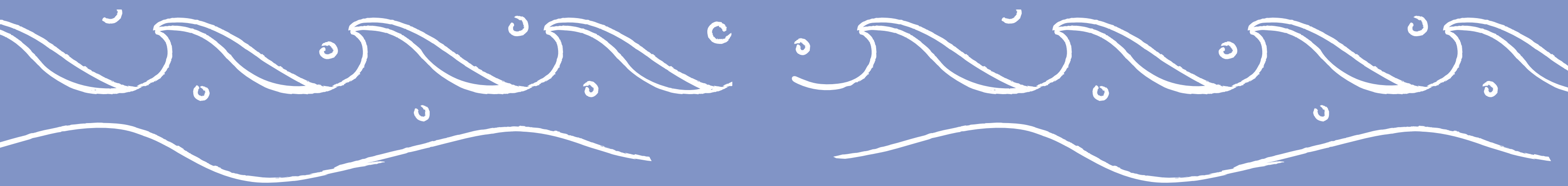   - Seminar series about how to easier explain to the public about Oil spills

Lifeguards: annotated bibliography

- OC Lifeguards site
  - Mission Statement
    - "To preserve and protect life, safety, and the environment through vigilant observation, prevention and response."
    - Protection value
  - Stress prevention
    - Preventing serious harm (i.e. drowning) and conflict mitigation. Promoting a safe and fun environment
  - Abilities
    - Hazard recognition and mitigating situation escalation by informing the public
  - Our Goal
    - Ensure lifeguards have the resources to effectively explain the hazards and educate the public and mitigate the effects of an oil spill on beachgoers

- EPA: Understanding Oil Spills And Oil Spill Response

POLLUTION IN THE SEAWATER IS HAZARDOUS
DO NOT GO INTO THE WATER!

Let's be vigilant in shielding and safeguarding habitats and people from harm.

To get involved, scan the QR Code below!

Recently, an oil spill has happened in the Orange County area. Approximately, 126,000 gallons of crude oil has contaminated the oceans and beaches. While cleaning up this environmental consequence is underway, we should not go to the beach or into the ocean until our local leaders say it is safe.

Oil Exposure through smell or touch can negatively affect a person's health. Specifically, the air near an oil spill can have cancer-causing chemicals that, when breathed in, can impact our health.

In the long term, exposure to the oil spill can damage our respiratory and reproductive system as well as weaken our immune system. For our own health and safety, we should not go near the water or beaches right now.

We can spread the word about this environmental issue by telling our friends and family. Also, on our own time, learn more about oil spills, how they impact the environment, and how they are preventable. Together, we can protect our communities and prevent a future oil spill from ever happening again.

海水污染非常危險 切勿戲水

海水污染非常危险 切勿戏水

Let's be vigilant in shielding and safeguarding habitats and people from harm.

To get involved, scan the QR Code below!

10月2號，大量漏油事件發生了，126000加侖的油被倒進海裡！影響我們的海洋，沙灘，動物，和植物！直到加州政府告訴我們海灘和海水是安全的，我們不應該去海邊。
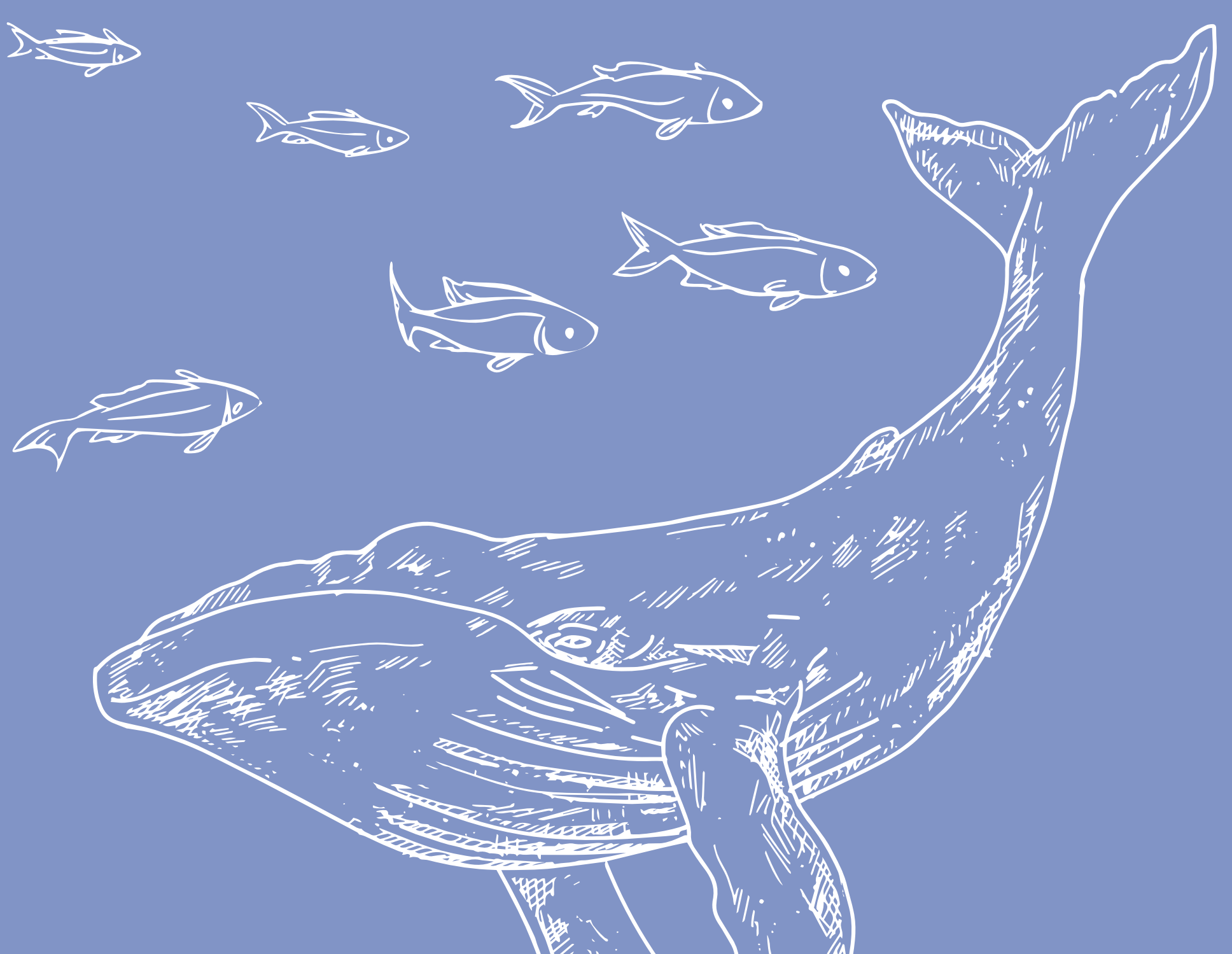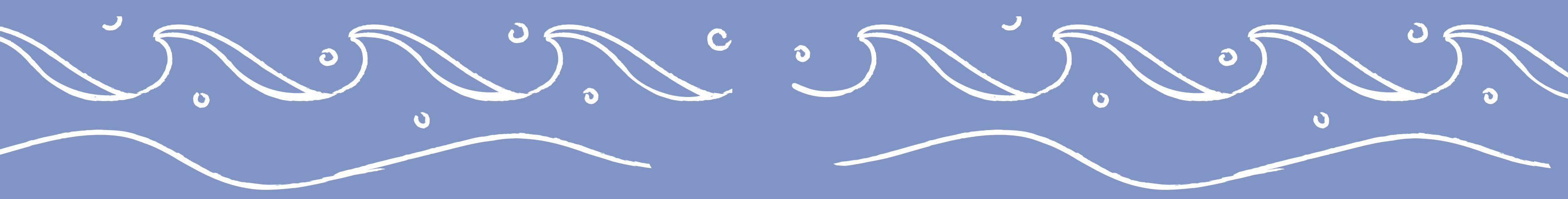
呼吸或者摸觸到漏油都不健康！漏油後的空氣中有致癌的化學原料，當我們呼吸入身體，會影響我們的健康，長期來說接觸到漏油會造成我們的呼吸系統，生殖系統和免疫系統受損。

為了我們健康和安全著想，我們現在不應該去海邊靠近海水！我們應該傳播這個環保訊息給我們的家人朋友知道！同時，我們自己也應該學習了解更多有關漏油是如何影響生態環保，和如何避免！一起，我們可以保護環境，保護我們的健康，保護我們的社區，避免漏油事件在發生！

POR FAVOR NO JUEGO EN LA AGUA, LA AGUA OCEANÍA ES CONTAMINADA Y PELIGROSA

Let's be vigilant in shielding and safeguarding habitats and people from harm.

To get involved, scan the QR Code below!

Recientemente, ocurrió un derrame de petróleo en el área del Condado de Orange. Aproximadamente, 126.000 galones de petróleo crudo han contaminado los océanos y las playas. Mientras se está limpiando esta consecuencia ambiental, no deberíamos ir a la playa o al océano hasta que nuestros líderes locales digan que es seguro.

La exposición al aceite a través del olfato o el tacto puede afectar negativamente la salud de una persona. Específicamente, el aire cerca de un derrame de petróleo puede contener sustancias químicas cancerígenas que, cuando se inhalan, pueden afectar nuestra salud.

A largo plazo, la exposición al derrame de petróleo puede dañar nuestro sistema respiratorio y reproductivo, así como debilitar nuestro sistema inmunológico. Por nuestra propia salud y seguridad, no deberíamos acercarnos al agua ni a las playas en este momento.

Podemos di fundiv este problema ambiental contándole a nuestros amigos y familiares. Además, en nuestro tiempo libre, aprenda más sobre los derrames de petróleo, cómo afectan el medio ambiente y cómo se pueden prevenir. Juntos, podemos proteger a nuestras comunidades y evitar que se repita un derrame de petróleo en el futuro.

Non-native English speakers: guide to framing

Main goal:
- What scientific aspect of the oil spill are you trying to communicate about?
  - *What the is the issue*
    - *Relation to animals/ environment*
      - *Food consumption*
      - *Recreational - Safety in swimming/ ocean activities*
    - *Relation to*
  - *Supplemental call to action/ what you as a community member can do*
- What social/political goal do you have?
  - *Opening accessibility of the solutions to non-native speakers*

Audience details
- What is common knowledge to your audience?
  - *Mandarin-Chinese Language*
  -
- Where does your audience fall in the power structure of the local area? https://www.census.gov/quickfacts/fact/table/orangecountycalifornia/RHI725219#RHI725219
  - *Mandarin-Chinese prevalent in Irvine (3.25% in OC)*
  - *Asian & Pacific Islander Populations in OC:*
    - *Mean Household Income: $90,234*
    - *Persons in Poverty: 9%*
    - *Education: 85.5% High School Graduates, 40.6% Bachelor's Degree*
    - *Educated, high-income*
    - *Immigrant Families*
- How can you use this opportunity to empower your audience?
  - Accessibility to information and warnings surrounding oil-spill via translations - distributed to life-guards and informal educators
    - Mandarin-Chinese speakers participation in recreational activities on beaches in OC (Huntington, 16 miles away)
    - Fishing (individual, recreational) - communication about contamination
    - Empower audiences with knowledge → gives audiences agency/tools to protect themselves from contaminants in their environment
    - What makes your audience cohesive (leading into shared values)? Righteousness, Wisdom (knowledge), Honesty (trustworthiness/credibility) - audiences likely to value credibility - emphasize our positionality (informal, student educators) and credibility of sources
  - Do you need to further split your audience into distinct groups?

Values
- Where can you look to find out about what your audience values? Think about what makes them cohesive, culturally. What resources can you find from their shared interests? Hints:

- Cultural myths/legends/fables have lessons and values inherent in them
  - *Harmony, benevolence, righteousness, courtesy, wisdom, honesty, loyalty, and filial piety*
    - *Harmony - "proper and balanced coordination between things" -> rationale, propriety, compatibility*
      - *Rationale - acting according to objective laws and truths*
      - *Propriety - suitability and appropriateness*
      - *"Harmony but not uniformity"*
      - *From uncoordinated to coordination/ asymmetry to symmetry/ imbalance to balance*
      - *BETWEEN HUMANKIND AND NATURE/ people and society/ members of different communities/ between mind and body*
    - *Benevolence - (Confucianism) importance of familial ties and blood connections "A peaceful family will prosper"*
      - *Based in familial ties*
      - *Extends to friendships and social relationships*
      - *Produces a full set of values that include justice, courtesy, wisdom, honesty, loyalty, self-discipline, and commitment*
    - *Righteousness - justice and correctness*
      - *Confucius: "the gentleman understands what is moral; the small man understands what is profitable"*
      - *Individual + collective and social benefits*
      - *ALL PEOPLE SHOULD SEEK WHAT BENEFITS BOTH THE INDIVIDUAL AND THE SOCIETY*
      - *Chinese Sayings*
        - *"Everybody is responsible for the rise or fall of the country"*
        - *"Be the first to show concern and the last to enjoy yourself"*
    - *Courtesy - modesty and prudence/ respecting laws and preventing misconduct*
      - *Traditional Chinese culture respects the importance of rites and has special rites for various occasions (IE: weddings, funerals, etc)*
      - *Saying: " it is impolite not to return what one receives"*
      - *Confucius particularly stressed courtesy in daily life*
    - *Wisdom - requires that one distinguish right from wrong, place capable people in suitable positions, know oneself, be resourceful*
      - *Confucius: "Benevolence means to love and wisdom means to understands others"*
        - *One must have a loving heart to love others and one must have wisdom to understand others*

- - - - - *Ppl should have not only a loving heart but also wisdom to distinguish good from evil and right from wrong*
      - *They should have the wisdom and resourcefulness to control evil and promote good*
    - *Honesty - trustworthiness, integrity, credibility*
      - *Confucius: "People should obtain their fortunes reasonably and properly through their labor and not through fraudulence and cheating"*
        - *Emphasized honesty in daily behavior*
      - *Honesty is a moral virtue greatly valued by Chinese*
    - *Loyalty - service to the motherland*
      - *Emotion and value that evolves from blood ties*
      - *Faithfulness to family and friends*
    - *Filial piety -*
      - *Confucius - " Respecting and supporting the family's senior members and handling their funeral affairs" are duties of younger generations and "caring for the old and nurturing the young" are fundamental family values*
  - *Myths*
    - *Sun Wukong - the monkey king*
      - *At first he was a very naughty monkey, eager to take over the world, costs Buddha a lot of effort to name him*
    - *Emperor's new clothes*
    - *Villain attacking town*
    - *Dragon*
  - *Proverbs*
    - *The one who plants the tree is not the one who will enjoy its shade*
    - *The best time to plant a tree was twenty years ago. The second best time is today.*
    - *Dripping water can eat through a stone*
    -
  - Look up action items from group meetings within your audience (workshops, board meetings, PTA meetings, etc.)
    -
  - What does your audience donate money to, on the whole?
    -
  - How has your audience been systematically marginalized and what has that done for their trust of environmental messengers?
    -
- Cross reference what you've discovered with peer reviewed literature on more general cultural/societal values to make sure you haven't made them too complicated/niche

Metaphors
- What is your starting common knowledge?

- - Depends on each individual and their english speaking level
    - Some do not know any english and therefore have no common knowledge on the issue at hand nor the significance of oil and oil spills in general
    - Some do have background in environmental topics such as oil spills and an english background.
  - Common Knowledge
    - Oil has contaminated the orange county area → stay clear of beach
    - Do not go near → toxic, bad for you
    - Do not swim in the water
- What scientific aspects do you think you will need to get across in order to complete your message?
  - Explaining the significance of oil spills in terms of how it affects human beings and their environment
    - Answer the question: what is wrong with oil in the water in terms of how it affects human health→ the significance → key is to get people to care
    - Recreation
      - Living on the coast of California, many residences and tourist use the coastal area/beaches for daily recreational use
        - walking/running/working out
        - Swimming
        - Water sports
      - Oil spill prevents them from doing so → impact daily life routine
      - Aesthetics of oil in the water → people instinctively don't want to be near it
      - Chinese and Taiwanese communities emphasize good health. Most of this population lives in Irvine which is 15-30 minutes away from the beach by driving. Therefore, many probably go to the coastal areas during their freetime or for recreational activities. So, we should focus on combining health and recreational activities together. Being exposed to oil impacts human health because of its toxicity. It can damage respiratory system, increase cancer risk, affect the liver and reproductive organs, and decrease ones immunity through inhalation or physical exposure → if u smell it, ur inhaling it
        - Work with lifeguard group in terms of getting them to be the messenger to explain the issue → we create an infographic that shows how oil spills can impact human health through odor and exposure. This inforgraphic can be in english, mandarin and spanish → keep it simple in terms of scientific terms → just get the basics out but not in a way that its like educational and for children.
- You can use external sources for inspiration, but this is a creativity moment - you have to come up with the metaphors! Extremely helpful if you can find somewhere it has been

> used before, and was effective. If you can't, explain the logical steps and how it connects to the value(s) you've chosen.

- **Potential metaphors**
  - 海水污染有毒 切勿戲水
  - 海水污染有毒 切勿戏水
    - **Hǎishuǐ wūrǎn yǒudú qiè wù xì shuǐ**
    - **Pollution in the seawater is toxic, do not go in the water!**

Explanatory Chains
- There will be fewer sources here, but likely lots of editing to get wording clear
- Follow logical steps and do not leap over cognitive gaps
  - Helpful for you to annotate the document where you think these common cognitive gaps are and why this communication piece addresses them

1. Recently, an Oil spill has happened in the Orange County area
2. 126,000 gallons of crude oil has contaminated the oceans and beaches
3. Clean up of this environmental disaster is underway
4. Until it is deemed safe by local authorities, people should not go to the beach or the ocean
5. Exposure (through smell or touch) to the oil can negatively affect a person's health
6. Exposure through inhalation immediately after an oil spill can be cancer-causing because of the high concentrations of Volatile organic compounds (VOCs)
7. Exposure to oil spills in the long term can damage the respiratory system and reproductive system as well as lower the effectiveness of one's immune system
8. Crude oil exposes individuals to high levels of toxins such as heavy metals, resulting in an increased cancer risk
9. Do not go near the water or the beaches
10. Spread the word! Tell friends and family this information to protect them and their health.
11. Oil spills are preventable. On your own time, learn more about these environmental consequences, how they impact the environment and what can be done to prevent a future one from ever happening again
    a. Provide resources!

Solutions (Action)
- Remember: scale of the solution must match the scale of the problem
  - Avoid swimming/contact with water
  - Spread the word!
  - Participate in citizen-science, oiled wildlife and beach cleanup: including a QR code in flyer - more ways to help/updated dashboard:
  - QR Code / Link Tree - More Ways to Help

Non-native English speakers: guide to framing

- https://voiceofoc.org/2021/10/oc-oil-spill-officials-readying-to-train-cleanup-volunteers-while-trying-to-ramp-up-response-efforts/
  - https://www.ocregister.com/2021/10/04/heres-how-you-can-help-with-the-huntington-oil-spill/
    - Surfrider Foundation
    - https://owcn.vetmed.ucdavis.edu/how-you-can-help
      Interested in volunteering? text OILSPILL to 51555.
      Report Oiled Wildlife: 877-823-6926
      Huntington Beach Hotline - for questions about the spill 714-374-1702
      OC Health Care Agency - questions about health 714-834-2000

Main goal:
- What scientific aspect of the oil spill are you trying to communicate about?
- What social/political goal do you have?

Audience details
- What is common knowledge to your audience?
- Where does your audience fall in the power structure of the local area?
  - 25.6% of OC population (Localized in Santa Ana, 76.8%)
  - education: 15% w/ BA or higher
  - median household income: $66,145
  - lower income, education rates
- How can you use this opportunity to empower your audience?
  - Providing audiences with knowledge to protect themselves and their community from contaminants on beaches/in ocean in the aftermath of the spill.
- What makes your audience cohesive (leading into shared values)?
  - Do you need to further split your audience into distinct groups?

Values
- Where can you look to find out about what your audience values? Think about what makes them cohesive, culturally. What resources can you find from their shared interests? Hints:
  - Cultural myths/legends/fables have lessons and values inherent in them
    - Myths
    - Proverbs
  - Look up action items from group meetings within your audience (workshops, board meetings, PTA meetings, etc.)
  - What does your audience donate money to, on the whole?
  - How has your audience been systematically marginalized and what has that done for their trust of environmental messengers?
- Cross reference what you've discovered with peer reviewed literature on more general cultural/societal values to make sure you haven't made them too complicated/niche

Non-native English speakers: guide to framing

Metaphors
- What is your starting common knowledge?
  - Oil spill in Orange County beaches → people should avoid going to the beaches, swimming in the water, eating any seafood that comes from orange county bodies of water
  - People are advised not to go in the water or to the beaches in fear of being exposed
  - Latinx and Hispanic populations live mostly in Santa Ana which is 20 minutes away from Huntington Beach and Newport Beach. Huntington beach is where the oil spill happened
  - Latinx and Hispanic people eat a wide diversity of foods, including seafood
  - Depends on each individual and their English speaking level
    - Some do not know any English and therefore have no common knowledge on the issue at hand nor the significance of oil and oil spills in general
    - Some do have background in environmental topics such as oil spills and an English background.

English:
Let's be vigilant in shielding and safeguarding habitats and people from harm

Recently, an oil spill has happened in the Orange County area. Approximately, 126,000 gallons of crude oil has contaminated the oceans and beaches. While cleaning up this environmental consequence is underway, we should not go to the beach or into the ocean until our local leaders say it is safe.

Oil Exposure through smell or touch can negatively affect a person's health. Specifically, the air near an oil spill can have cancer-causing chemicals that, when breathed in, can impact our health.

In the long term, exposure to the oil spill can damage our respiratory and reproductive system as well as weaken our immune system. For our own health and safety, we should not go near the water or beaches right now.

We can spread the word about this environmental issue by telling our friends and family. Also, on our own time, learn more about oil spills, how they impact the environment, and how they are preventable. Together, we can protect our communities and prevent a future oil spill from ever happening again.

10月2號，大量漏油事件發生了，126000加侖的油被倒進海裡！影響我們的海洋，沙灘，動物，和植物！直到加州政府告訴我們海灘和海水是安全的，我們不應該去海邊。

呼吸或者摸觸到漏油都不健康！漏油後的空氣中有致癌的化學原料，當我們呼吸入身體，會影響我們的健康，長期來說接觸到漏油會造成我們的呼吸系統，生殖系統和免疫系統受損。

Non-native English speakers: guide to framing

為了我們健康和安全著想，我們現在不應該去海邊靠近海水！我們應該傳播這個環保訊息給我們的家人朋友知道！同時，我們自己也應該學習了解更多有關漏油是如何影響生態環保，和如何避免！一起，我們可以保護環境，保護我們的健康，保護我們的社區，避免漏油事件在發生！

On October 2nd, a large oil spill happened. 126,000 gallons of oil was dumped in the ocean, impacting our coasts/beaches, animals and plants. Until California's government tells us that the beaches and water are safe, we should not go. Breathing in or touching the oil is not healthy. the air near an oil spill can have cancer-causing chemicals that, when breathed in, can impact our health.

In the long term, exposure to the oil spill can damage our respiratory and reproductive system as well as weaken our immune system. For our own health and safety, we should not go near the water or beaches right now.

We can spread the word about this environmental issue by telling our friends and family. Also, on our own time, learn more about oil spills, how they impact the environment, and how they are preventable. Together, we can protect our communities and prevent a future oil spill from ever happening again.

Alerts and Updates
Cal Spill Watch
Receive Updates In Your Inbox pipelineP00547@wildlife.ca.gov
Track Wildlife Changes Here

Nonprofits and Initiatives
Citizen Science:
California Environmental Literacy Initiative

Wildlife:
Wetlands & Wildlife Care Center

OC Habitats

Bolsa Chica Conservancy Oil Spill Emergency Response Fund

To assist with future cleanup efforts: Socal Spill Response

Numbers to TEXT or CALL
General Questions: 714-374-1702

Surfrider Foundation text OILSPILL to 51555.
Found Wildlife, do not touch, call Oiled Wildlife Care Network hotline: 1-877-823-6926

Non-native English speakers: guide to framing

California Department of Fish and Wildlife
<u>Incident Volunteer Form</u>
Oiled Wildlife Care Network hotline: 877-823-6926

Non-native English speakers: annotated bibliography

"Audubon's Statement on Equity, Diversity and Inclusion ." *Audubon*.

As part of Audubon's commitment to diversity, equity, and inclusion, it is one of the leading organizations in promoting the shift from citizen science language to *community* science language. Concerned with the conservation of birds, Audubon is lifting up the voices of local and diverse leaders and promoting community-science through conscious language choice.

Canfield , Katherine, and Sunshine Menezes. "The State of Inclusive Science Communication: A Landscape Study." *University Rhode Island.*

Canfield and Menezes support the recruitment of diverse and local leadership. According to the report, there is a disproportionately high number of white women in science communication, and "without diverse leadership, there is a risk of perpetuating the same inequities in representation that Inclusive Science Communication (ISC) claims to redress. Canfield and Menezes provide guidance for inclusive science communication: intentionality, reciprocity, reflexivity

Chmutina, Ksenia, and Jason Von Meding. "A Dilemma of language:"Natural disasters" in academic literature." International Journal of Disaster Risk Science 10.3 (2019): 283-292.

ABS: For decades sections of the academic community have been emphasizing that disasters are not natural. Nevertheless, politicians, the media, various international organizations—and, more surprisingly, many established researchers working in disaster studies—are still widely using the expression "natural disaster." We systematically analyzed the usage of the expression "natural disaster" by disaster studies researchers in 589 articles in six key academic journals representative of disaster studies research, and found that authors are using the expression in three principal ways: (1) delineating natural and human-induced hazards; (2) using the expression to leverage popularity; and (3) critiquing the expression "natural disaster." We also identified vulnerability themes that illustrate the context of "natural disaster" usage. The implications of continuing to use this expression, while explicitly researching human vulnerability, are wide-ranging, and we explore what this means for us and our peers. This study particularly aims to stimulate debate within the disaster studies research community and related fields as to whether the term "natural disaster" is really fit for purpose moving forward.

Dietz, Martin, and Steven Yang . "Effectively Communicating with Subsistence Fish Consumers to Reduce Exposure to Contaminants." *Duke University Superfund Research Center*.

Dietz and Yang examine non-commercially caught fish, in other words, "fishing for food" in areas impacted by contaminants. A high number of subsistence fishers belong to culturally diverse communities, and fishing represents, according to Dietz and Yang, "a continuation of many culturally embedded practices or diverse communities within the U.S." and "native speakers of other languages who have yet to develop the English proficiency required to interpret the detailed health information in advisories may be at a disadvantage." Dietz and Yang tested a "Stop, Check, Enjoy" campaign and tested its effectiveness for non-native English

speakers. Dietz and Yang support a great need for more information regarding marginalized and overlooked populations impacted by the health risks of fishing for food, especially in the aftermath of incidents like the Huntington Beach Oil Spill in diverse Southern California communities. The report uses "contaminants" in language with effectiveness for a broad range of audiences.

National Network for Ocean and Climate Interpretation "Metaphor Reframe Cards, Value Reframe Cards." Frameworks Institute.

The National Network for Ocean and Climate Interpretation's Metaphor and Value reframe cards influenced our choice of the protection value and influenced our research into the benefits of using "sticky" word choice and metaphors in climate and ocean communication.

Scauzillo, Steve. "Here's How You Can Help with the Huntington Oil Spill." *Orange County Register*, Orange County Register, 5 Oct. 2021.

Scauzillo's article overview effective and productive ways for community members to get engaged in the aftermath of the Huntington Beach Oil Spill. Scauzillo compiles phone numbers, websites of wildlife care and conservation programs, the best places to donate your time and money, and ways to engage in future clean-up opportunities.

Windsor, Leah C., Nia Dowell, and Art Graesser. "The language of autocrats: Leaders' language in natural disaster crises." Risk, Hazards & Crisis in Public Policy 5.4 (2014): 446-467.

ABS: Recent research has shown that natural disasters present political problems for societies, as these events make both citizens and leaders vulnerable. Autocratic leaders use language strategically following natural disasters to maximize their time in office. We introduce a new data set derived from using computational linguistic programs (LIWC and Coh-Metrix) to explore language patterns in the discourse of three prominent political leaders to uncover their strategies for navigating the political and social problems created by natural disasters. Our analysis covers the speeches of Chairman Mao Tse-Tung, Commander Fidel Castro, and President Hosni Mubarak. We show that leaders' language reveals their preferences and strategies for accommodating the social, political, and economic shocks created by natural disasters through blaming and credit-claiming language. Our results provide insight into how autocratic leaders' language reflects these three strategies.

Zhang, Jing. "Assessment of Emergency Response Worker Training During the Deepwater Horizon Oil Spill." *Environment & Ecology, University of North Carolina*.

In this assessment of emergency response training received by workers and response teams during the Deepwater Horizon Oil Spill, Zhang emphasizes the potential language barriers and comprehension gaps for non-native English speakers. In this assessment, non-native speakers scored lower in training sessions than native English speakers; this result could be attributed to inaccurate understanding or translation of the questions in Vietnamese. According to Zhang, the usefulness of brochures and materials like the Oil Spill Cleanup Guide for non-native English

speakers "needs to be studied in greater detail so that future emergency response operations can begin to provide translated materials for non-native English speakers if it enables them to better understand and perform their jobs." This lack of research persists to all areas of environmental emergency and incident response for impacted non-native English speaking communities.
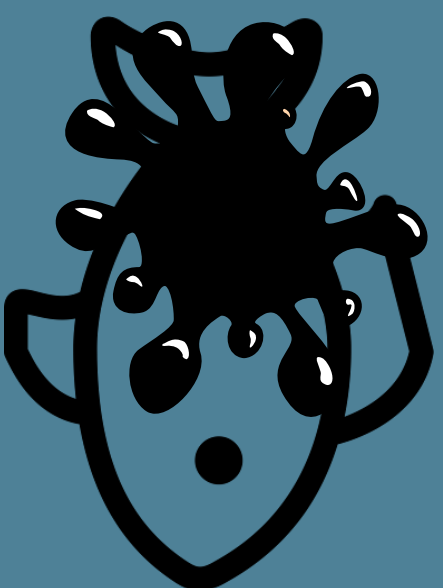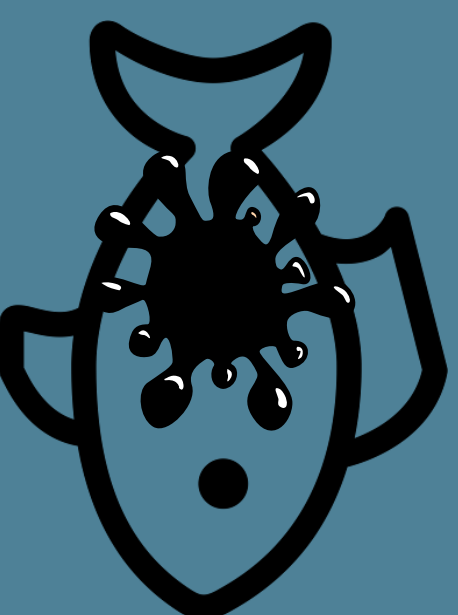
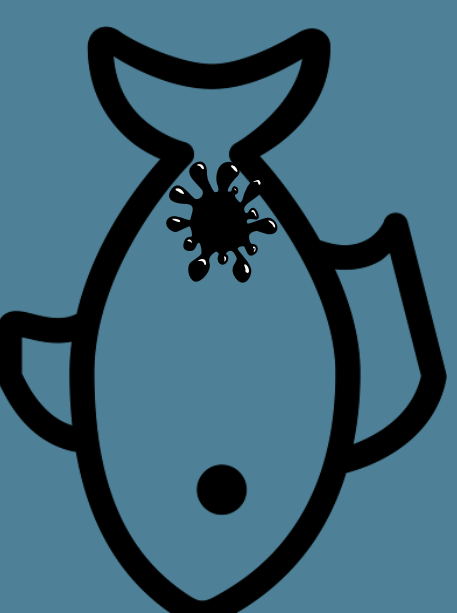# Oil Spill Fishing Timeline

(Time)

(Time)

(Time)

(Time)

(Time)

An oil spill is like a can of worms, causing a large problem that takes a while to clean up but can recover eventually.

We must protect our communities from toxic fish and prevent oil spills from happening in the future.

Further Resources:

Reach the Office of Spill Prevention and Response at:

(916) 375-8580

Fishers: guide to framing

Trusted communicator:
- Other fishers

Audience:
- Fishers
    - Commercial
    - Sustenance fishers (people who fish for food for themselves/family)
- Often many do not speak much English

Value:
- Protection
    - Protect ourselves and our families from toxic fish
    - Prevent oil spills from happening in the future to protect our food supply
    - Prevent oil spills to protect our environment and businesses

Metaphor:
- An oil spill is like a can of worms.

Solution:
- Refer to fishing timeline for precautions (which can be edited and filled in once the adequate research is out there to make confident statements about when to fish)
- Encourage fellow fishers to do the same in order to protect health
- Educate families and their circles on the effects of oil spills
- Refer to QR code that goes to Linktree with additional resources

Areas to avoid:
- Excessive pessimism

Written communication piece:

Up to 144,000 gallons of oil were spilled at Huntington Beach in October 2021. This oil affects our fish, our environment, and our community. We must protect our communities from toxic fish and prevent oil spills from happening in the future to protect our food supply, our health, and our businesses.

An oil spill is like a can of worms, causing a large problem that takes a while to clean up, but can recover eventually. With ingestion and contact with oil, fish suffer from various health effects like reduced growth, fin erosion, reproduction issues, and increased mortality. When these fish die off it disrupts the ecosystem and the food webs in it, as well as our own. Toxic fish are inedible and will cause harm to our health if eaten. Eating toxic fish can cause increased risk of cancer, respiratory and reproductive problems, and liver damage. Families that rely on fishing as their primary source of food go hungry. Our businesses also suffer from a lack of supply. Educating these groups about when it is safe to eat fish from ocean piers is essential to protecting their health.

Though there are many negative effects from oil spills, we can move forward and adjust to this problem. By referring to our fishing timeline and encouraging other fishers to do the same, we can take the necessary precautions to keep our communities safe from toxic fish. We can also encourage other local fishers to use their voices and be a part of the conversation regarding the oil spill. Together we can also educate our families and communities on the effects of oil spills in order to increase awareness and protect ourselves.

Fishers: guide to framing

Visual representation of communication elements
Oil Spill Fishing Editable Timeline
(916) 375-8580 for OSPR information

Annotated sources
- General Oil Spill Facts
  - https://www.ocregister.com/2021/10/09/oc-oil-spill-what-happened-and-whats-next-many-questions-and-a-few-answers/
    - This source simply explains the Orange County Oil Spill and discusses the steps moving forward, how we should proceed, and how government officials intend on dealing with the spill.
  - https://abcnews.go.com/US/major-oil-spill-closes-californias-huntington-beach-airshow/story?id=80378732
    - This source goes into depth about the specifics of the oil spill and all the details that fishers may have about general information regarding the spill, like where it started, how much was spilled, etc.
- History with other Oil Spills
  - https://cdnsciencepub.com/doi/10.1139/f2011-171
    - This source talks about the Deepwater Horizon oil spill, which is similar in size to the Orange County oil spill, therefore it provides some insight into the potential effects we are seeing and may continue to see in the future with the Orange County oil spill.
- Timeline for Fishers
  - https://www.ocregister.com/2021/10/15/local-fishing-restrictions-likely-in-place-for-weeks-more-following-oil-spill/
    - This source details the explanation for the declaration of fishery closings at least 2-4 weeks until opening again, which is beneficial information for fishers.
  Effects of Oil on Fish
  - https://www.environmentalpollutioncenters.org/oil-spill/marine-life-wildlife/
  - https://oceanservice.noaa.gov/facts/oilimpacts.html#:~:text=When%20exposed%20to%20oil%2C%20adult,to%20lethal%20and%20sublethal%20impacts.
  - https://www.latimes.com/food/story/2021-10-06/fishermen-and-foodways-begin-to-feel-the-squeeze-of-orange-countys-oil-spill
  - https://www.cbsnews.com/news/marine-food-chain-seen-at-risk-after-oil-spill/
    - All of these four sources explain the various health effects fish suffer from and the health effects we suffer from if we consume said fish. It helps provide insight into the exact detrimental effects on our health and our communities that oil spills can cause.

Fishers: guide to framing

<u>Research for Original Timeline Idea:</u>

The health effects that can be caused by exposure to PAHs depend on --

- how much has entered the body,
- how long you have been exposed to PAHs, and
- how the body responds to PAHs.

These effects may be either short-term or long-term.

Short-term health effects

It is not clear that PAHs cause short-term health effects. Other compounds commonly found with PAHs may be the cause of short-term symptoms such as eye irritation, nausea, vomiting, diarrhea, and confusion.

Long-term health effects

Long-term health effects of exposure to PAHs may include cataracts, kidney and liver damage, and jaundice. Repeated skin contact to the PAH naphthalene can result in redness and inflammation of the skin. Breathing or swallowing large amounts of naphthalene can cause the breakdown of red blood cells.

Long-term exposure to low levels of some PAHs have caused cancer in laboratory animals. Benzo(a)pyrene is the most common PAH to cause cancer in animals. Studies of workers exposed to mixtures of PAHs and other compounds have noted an increased risk of skin, lung, bladder, and gastrointestinal cancers. The information provided by these studies is limited because the workers were exposed to other potentially cancer-causing chemicals besides PAHs. Although animal studies have shown adverse reproductive and developmental effects from PAH exposure, these effects have generally not been seen in humans.
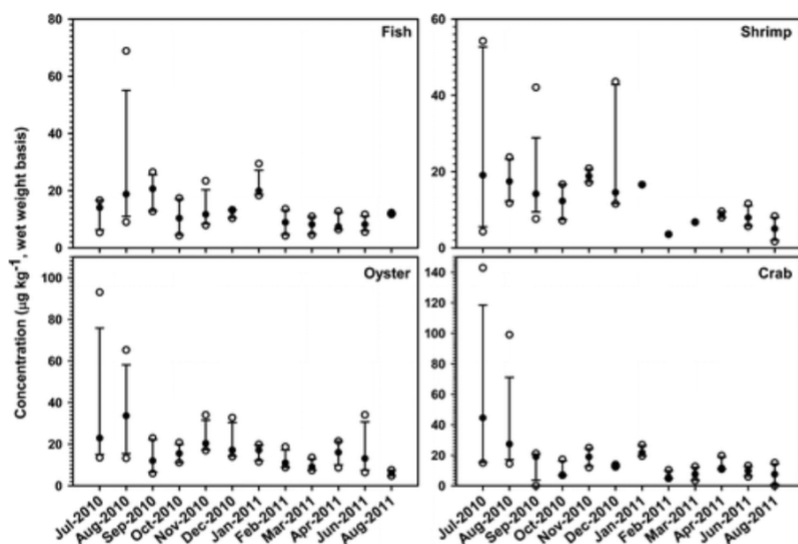
Figure 5

Figure 5. Temporal change of total PAHs in fish, shrimp, crab, and oysters from the Mississippi Gulf Coast areas affected by the Deepwater Horizon Oil Spill Disaster. The filled circle, the error bars below and above the filled circle, and the open circles below and above the error bars mark the median (50th percentile), 5th and 95th percentiles, and minimum and maximum values, respectively.
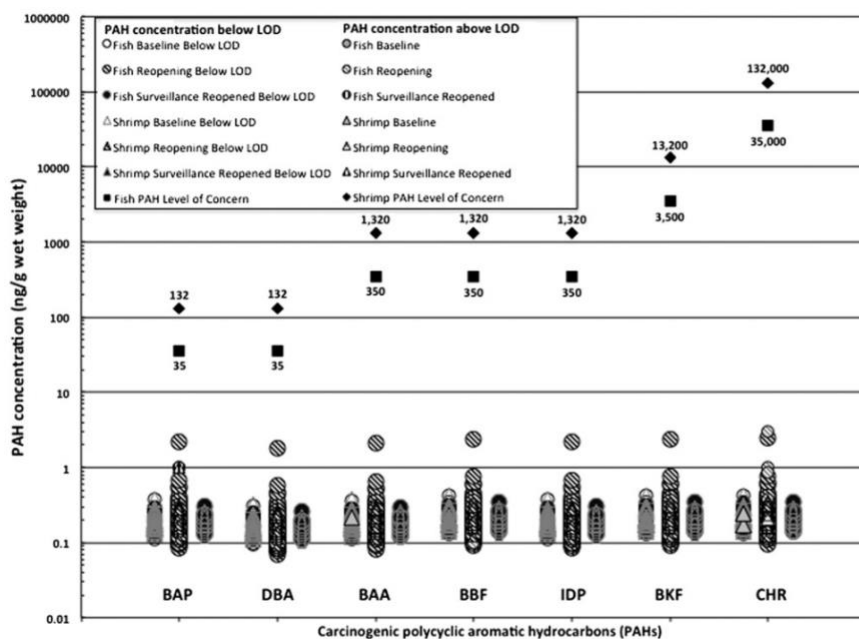

Fig. 3. Concentrations of carcinogenic polycyclic aromatic hydrocarbons (PAHs) measured in seafood collected in federal waters from April 28, 2010 through March 31, 2011 that were tested for reopening, as well as subsets for baseline and surveillance reopened samples. The levels of concern for each PAH are shown as solid diamonds for fish and solid squares for shrimp. Seafood PAH concentrations are shown in three columnar groupings above each abbreviated PAH, with levels for baseline, reopening, and surveillance reopened samples presented in left, center, and right columns, respectively. (Inset) (Left) Circles and triangles indicate samples where the concentrations are below the limit of detection (LOD) of the sensitive gas chromatography/mass spectrometer (GC/MS) instrumentation used; (Right) circles and triangles indicate samples where the levels are above the GC/MS LOD. Abbreviations: BAA, benz(a) anthracene; BAP, benzo(a)pyrene; BBF, benzo(b)fluoranthene; BKF, benzo(k) fluoranthene (coelutes with benzo(j)fluoranthene); CHR, chrysene (coelutes with triphenylene); DBA, dibenz(a,c)anthracene + dibenz(a,h)anthracene; IDP, indeno(1,2,3-cd)pyrene.
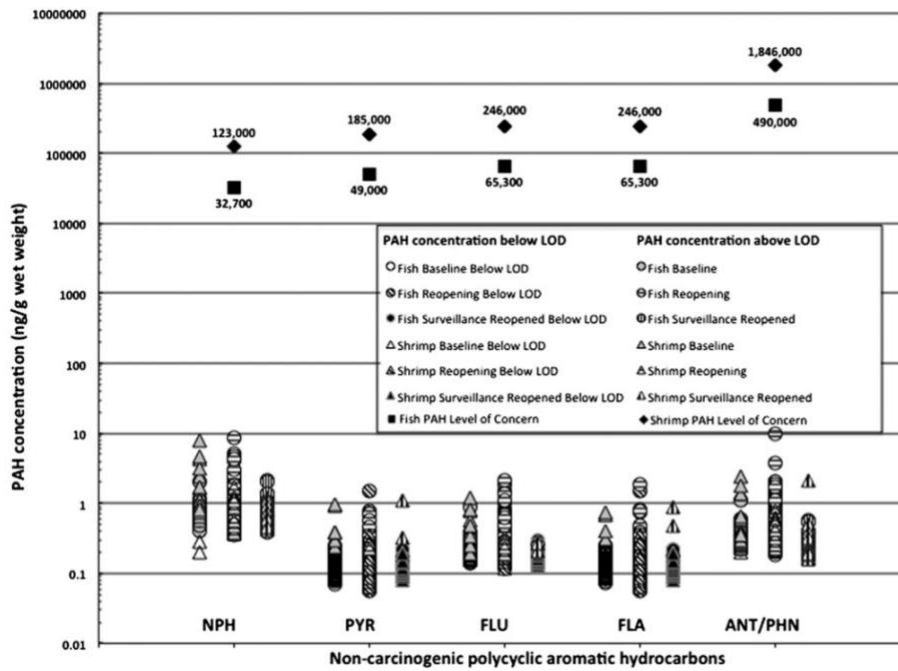
Fig. 4. Concentrations of non-carcinogenic polycyclic aromatic hydrocarbons (PAHs) measured in seafood samples collected in federal waters from April 28, 2010 through March 31, 2011 that were tested for reopening, as well as subsets for baseline and surveillance reopened samples. The levels of concern for each PAH are shown as solid diamonds for fish and solid squares for shrimp. Seafood PAH concentrations are shown in three columnar groupings above each abbreviated PAH, with levels for baseline, reopening, and surveillance reopened samples presented in left, center and right columns, respectively. (*Inset*) (*Left*) Circles and triangles indicate samples where the concentrations are below the limit of detection (LOD) of the sensitive gas chromatography/mass spectrometer (GC/MS) instrumentation used; (*Right*) circles and triangles indicate samples where the levels are above the GC/MS LOD. Abbreviations: ANT/PHN, anthracene + phenanthrene; FLA, fluoranthene; FLU, fluorene; NPH, naphthalene; PYR, pyrene.

Fishers: annotated bibliography

Connelly, Laylan. "OC oil spill forces fisheries to wait at least 2-4 weeks before restrictions lift". *The OCR,* Oct 15, 2021. https://www.ocregister.com/2021/10/15/local-fishing-restrictions-likely-in-place-for-weeks-more-following-oil-spill/

This source details the explanation for the declaration of fishery closings at least 2-4 weeks until opening again, which is beneficial information for fishers.

Jacobo, Julia. "Huntington Beach oil spill: Officials raise potential oil spill amount to 144,000 gallons amid cleanup efforts". *ABC News,* Oct. 4, 2021. https://abcnews.go.com/US/major-oil-spill-closes-californias-huntington-beach-airshow/story?id=80378732

This source goes into depth about the specifics of the oil spill and all the details that fishers may have about general information regarding the spill, like where it started, how much was spilled, etc.

NOAA. "How does oil impact marine life?" *NOAA*, 2021. https://oceanservice.noaa.gov/facts/oilimpacts.html

This source explains the various health effects fish suffer from and the health effects we suffer from if we consume said fish. It helps provide insight into the exact detrimental effects on our health and our communities that oil spills can cause.

Robinson, Alicia. "OC oil spill: What happened and what's next? Many questions and a few answers". *The Orange County Register,* Oct 9, 2021. https://www.ocregister.com/2021/10/09/oc-oil-spill-what-happened-and-whats-next-many-questions-and-a-few-answers/

This source simply explains the Orange County Oil Spill and discusses the steps moving forward, how we should proceed, and how government officials intend on dealing with the spill.

SumailaU. Rashid, Cisneros-MontemayorAndrés M., DyckAndrew, HuangLing, CheungWilliam, JacquetJennifer, KleisnerKristin, LamVicky, McCrea-StrubAshley, SwartzWilf, WatsonReg, ZellerDirk, and PaulyDaniel. Impact of the *Deepwater Horizon* well blowout on the economics of US Gulf fisheries. *Canadian Journal of Fisheries and Aquatic Sciences*. 69(3): 499-510. https://doi.org/10.1139/f2011-171

This source talks about the Deepwater Horizon oil spill, which is similar in size to the Orange County oil spill, therefore it provides some insight into the potential effects we are seeing and may continue to see in the future with the Orange County oil spill.

Oil Spills
Learning Activity

About Oil Spills

An oil spill is a form of pollution that happens when **crude oil** leaks and is released on land or more often in water.

Crude oil: the liquid remains of ancient plants and animals found below the ground (a fossil fuel)

Oil spills can never be 100% cleaned up

Effects of oil spills:

- Animals breathe in, eat, or absorb the oil, harming their health
- Animals lose their habitats while the oil is being cleaned up
- Animals have a hard time finding food

Think...

How could an oil spill affect you?

Can we stop oil spills from happening? How?

Activity Objectives:

Understand the impact of oil spills on ecosystems

MATERIALS:
- Sheet of paper
- Shredded paper
- Glue stick
- Small cup

INSTRUCTIONS:
- Hand out materials to each student
- Students will need to take the glue stick and start "drawing" on the piece of paper
- Have students pour the shredded paper onto the paper and attempt to shake off the unstuck shreds
- Have students repeat steps 2 and 3
- Observe and discuss

REFLECTION:

After the glue had dried, you could not remove the paper shreds anymore. How is the glued paper similar to the oil left over in the ocean even after people have tried to clean it up?

Share your paper project with a family member and tell them about its meaning!
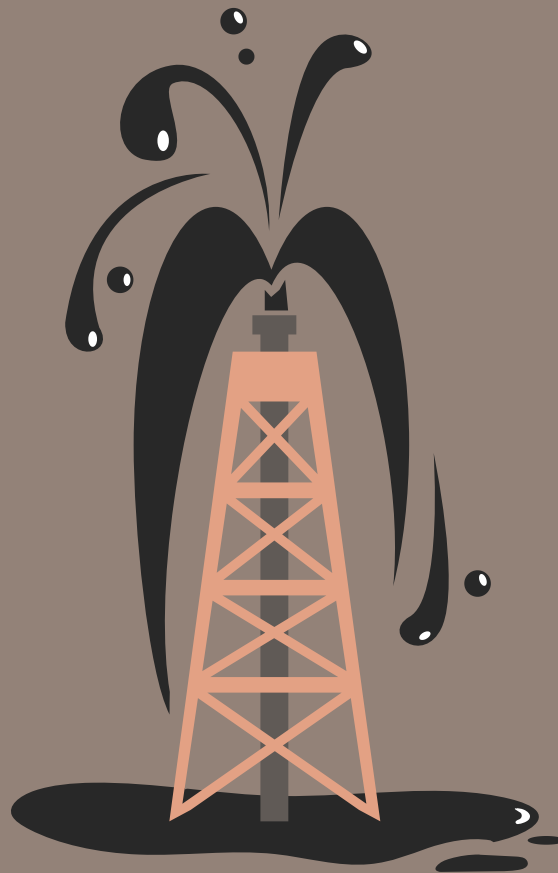
We can prevent

OIL SPILLS

Let's learn how...

An oil spill is a form of pollution that happens when crude oil leaks and is released on land or more often in water.

Crude oil: the liquid remains of ancient plants and animals found below the ground (a fossil fuel)

EFFECTS

Research shows that toxic chemicals from oil spills remain in the ocean for years

Animals inhale, absorb, and ingest the chemicals from spilled oil, leading to respiratory, digestive, and fertility issues
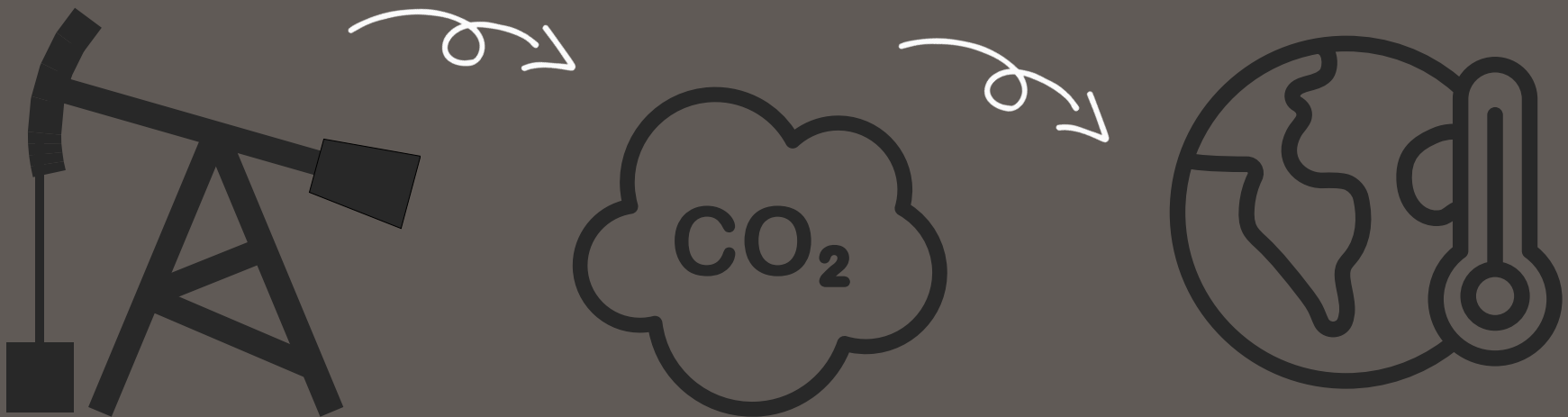
The clean up process of oil spills dislocates organisms from their natural habitats for extended periods of time

Our dependence on fossil fuels like this crude oil, coal, and natural gas contribute to climate change as a whole
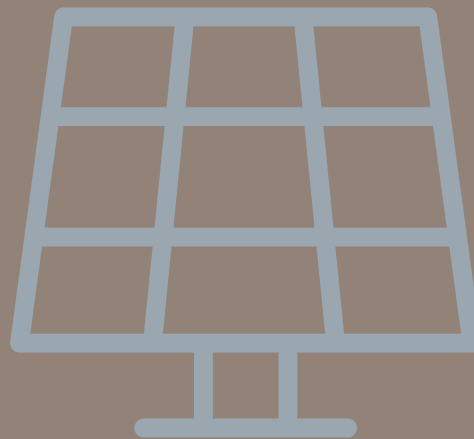
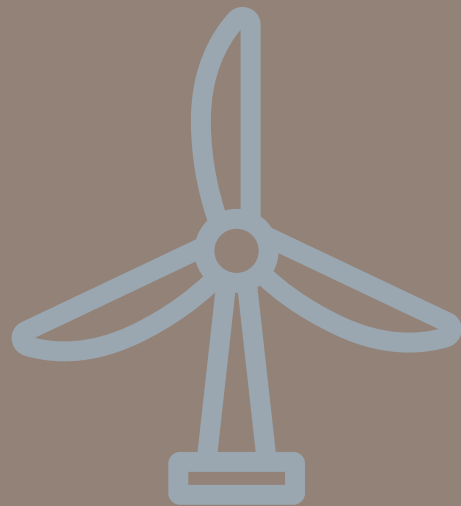When we burn these fossil fuels, CO2 is released that then builds up in our atmosphere

This build up contributes to a heat trapping blanket that then disrupts our climate

We need a proactive approach...

Reducing our use of oil is the key to preventing future oil spills

Instead of oil, we can use renewable energy alternatives like wind and solar

TOGETHER

We must protect and preserve the habitats and ecosystems we depend on

Elementary

- **Trusted communicator:**
  - Teachers
  - Nonprofits are not the trusted communicators for children. This document is designed to be given to K-5 teachers for them to then utilize the information and activity to develop a lesson on oil spills for their students.

- **Audience:**
  - Elementary School students

- **Value:**
  - Protection
    - We must protect people and places from being harmed by environmental issues

- **Metaphor:**
  - Oil spill is like making a "crafting" mess, difficult but necessary to clean up, will still stick with us for a long time
  - For example, glitter, paper, or other materials that get stuck on wet glue

- **Solution:**
  - Continue this conversation with parents, friends, teachers

- **Areas to avoid:**
  - Complicated science jargon/terms
  - Political/government/systemic topics or issues
  - Any "crisis" language that would be scary

- **Full communication piece:**
  - https://www.canva.com/design/DAEvxhgpHJ0/BM864-TXBCfDq6cG5ht3tw/view?utm_content=DAEvxhgpHJ0&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink

Middle/High school

- **Trusted communicator:**
  - Teachers
  - Students are trusted communicators on their own online platforms, so we chose to write an Instagram post to be shared.

- **Audience:**
  - Middle/High School

- **Value:**
  - Responsible management
    - - taking practical and common-sense steps to address problems facing our environment today is in the best interest of our future generations

- **Metaphor:**
  - Oil spill is like a digital footprint

- **Solution:**
  - Talk about it! Normalize the discussion of climate change being an intersectional issue that the majority of our population cares about.

- **Areas to avoid:**
  - Climate fatalism
  - Fear-based methods

- **Full communication piece:**
  - https://www.canva.com/design/DAEvdbDedzI/bw-a_Ah43bfReCPHzMvneQ/watch?utm_content=DAEvdbDedzI&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink

Helpful resources

Lesson plan & Oil Spill worksheet for 4th-7th (lab activity)
https://www.calacademy.org/educators/lesson-plans/slippery-shores-oil-spill-clean-up
Another Oil Spill (lab activity)
http://oceanandyou.com/OnlineContent/SelfContainedSpillKit.pdf
9-12 Lab Activity
https://www.commonsense.org/education/lesson-plans/oil-spills-and-environmental-disasters

Teacher Resources for Oil Spill Teaching
https://www.teachersfirst.com/spectopics/oilspill.cfm

Clean up methods DO NOT EQUAL solutions
• Bioremediation: using microorganisms or biological agents to break down or remove oil
• Dredging: some oils are actually denser than water, and would sink. These would require cleaning below the surface of the impacted water.
• Skimming: can be effective in areas where the water is calm.
• Dispersion: materials such as some detergents can disperse oil into smaller clusters that may be easier to remove than larger areas. However, the detergents can sink deeper into the water than oil does, so it may cause harm deeper in the water while reducing negative environmental impact on the surface.

• Burning: controlled burning can often eliminate a large proportion of oil in water, but of course requires great care to avoid having the fire spread. The burning oil can also cause air pollution.

Using Real Time Data to Determine Oil Spill Clean Up Response: a high school lesson plan designed to use real-time data and interactive wind map to predict the direction of an oil spill in the Gulf of Mexico

EPA: what is environmental education?
https://www.epa.gov/education/what-environmental-education
Components of EE:

- Awareness and sensitivity to the environment and environmental challenges

- Knowledge and understanding of the environment and environmental challenges

- Attitudes of concern for the environment and motivation to improve or maintain environmental quality

- Skills to identify and help resolve environmental challenges

- Participation in activities that lead to the resolution of environmental challenges

EE is more than just information about the environment…

- EE does not advocate a particular viewpoint

- Enhances problem solving and decision making skills

- Teaches critical thinking

- Increases public awareness and knowledge of environmental issues

K-12: annotated bibliography

- United States Environmental Protection Agency. "What Is Environmental Education?" *EPA*, Environmental Protection Agency, 2021, https://www.epa.gov/education/what-environmental-education.

This document highlights the components of Environmental Education. We utilized the values of "awareness and sensitivity," "knowledge and understanding," and "attitudes of concern." We also encourage participation in efforts to resolve the given environmental challenge.

- Wheeler, G., Thumlert, C., Glaser, L., Schoellhamer, M., & Bartosh, O. (2007). Environmental Education Report: Empirical Evidence, Exemplary Models, and Recommendations on the Impact of Environmental Education on K-12 Students. *Washington Office of Superintendent of Public Instruction*.

This document gives examples of researched characteristics of successful environmental education programs. We ensured the connection of our outward facing document to real-world concepts and issues to allow students to apply the knowledge they are gaining outside of the classroom. For the K-5 students, we incorporated critical thinking questions that require observation and the interpretation of information in order to integrate inquiry into the lesson. Also for the K-5 students, the activity we developed is a hands-on learning experience, engaging and motivating the students as they are learning given that this method is more likely to help the students remember and apply the information.

- NNOCCI Strategic Framing Resources

We utilized the values and metaphors provided by the NNOCCI Strategic Framing Toolkit. We used the value of responsible management for k-5 and protection as well as responsible management for 6-12. For 6-12 we used the metaphor of the heat trapping blanket.

- Athman, J. A., & Monroe, M. C. (2001). Elements of Effective Environmental Education Programs.

This document helped us decide a solution for the 6-12 students. This source says that an effective element of environmental education is the inclusion of elements that empower the learners with skills and tools to help prevent and address environmental issues. We titled the outward facing document this group "we can prevent oil spills," empowering the audience and providing them with a sense of responsibility. We also provided them with the ability to act upon this empowerment and responsibility by putting this information on a social media post and suggesting that they share it with others to contribute to awareness on the topic. The use of an instagram post was also influenced by this document in that it highlighted the importance of

reaching a broader audience. Our audience is relatively narrow in terms of students grades 6-12, but on a social media platform, this post would reach beyond that group as well, starting intergenerational and interdisciplinary conversations.

- *Slippery shores: Oil spill clean-up*. California Academy of Sciences. (n.d.). Retrieved November 30, 2021, from https://www.calacademy.org/educators/lesson-plans/slippery-shores-oil-spill-clean-up.

This document gave an example of an oil spill activity for elementary schoolers. This source helped us create our new lab activity and utilize discussions that will create a conversation for the students. Its discussions include educating the students how and why this lab is similar to oil spills and how it impacts them personally.

- Anderson, M., & Jiang, J. (2018). Teens, social media & technology 2018. *Pew Research Center*, *31*(2018), 1673-1689.

This source identifies the amount of teenagers who have access to a smart phone and social media (95%). This article helped us to decide our method of communication for grades 6-12. The large amount of teenagers who have a social media presence or at least access to it in some form means that our method of communication will be able to reach a majority of our target audience among a much broader audience of people who are on social media. 72% of teenagers ages 13-17 say they use Instagram. This article also helped us choose our method of communication based on the information that teenagers say they utilize social media to learn new information and connect with others, both are two of our main goals of our communication.

What are Indigenous Knowledge Sytems (IKS)?

THEY ARE **INTERDISCIPLINARY** IDEOLOGIES THAT EMBRACE KNOWLEDGE PERTAINING TO SPECIFIC INDIGENOUS COMMUNITIES. THEY ARE **HOLISTIC**, **GENERATIONAL**, AND HIGHLY **DYNAMIC**, USING **TRADITIONAL** AND **LONG-STANDING** PROBLEM-SOLVING TECHNIQUES, TO ADDRESS ENVIRONMENTAL CONDITIONS IN THE PRESENT.

INDIGENOUS KNOWLEDGE KEEPERS

ARE SCIENTISTS WITHOUT THE LAB COATS

THERE IS A UMBRELLA OF KNOWLEDGE SYSTEMS

AND WE NEED THEM ALL TO CREATE INFORMED SOLUTIONS

WHY INTEGRATE IKS?

TO PROTECT AND RESPONSIBLY MANAGE OUR ENVIRONMENT

Indigenous-led Nonprofits + Community Organizations to Consult With:

Local

- Sacred Places Institute for Indigenous Peoples
- American Indian Resource Center

National

- NDN Collective
- Indigenous Climate Action
- Indigenous Environmental Network
- Seeding Sovereignty

INDIGENOUS LED NONPROFITS + COMMUNITY ORGANIZATIONS TO CONSULT WITH

LOCAL
- SACRED PLACES INSTITUTE FOR INDIGENOUS PEOPLES
- AMERICAN INDIAN RESOURCE CENTER

NATIONAL
  - NDN COLLECTIVE
  - INDIGENOUS CLIMATE ACTION
  - INDIGENOUS ENVIRONMENTAL NETWORK
  - SEEDING SOVEREIGNTY

Indigenous knowledge: guide to framing

External Message
We need to **protect** our planet for future generations, and **responsibly manage** the land

and waters we rely on, by including a diverse array of knowledge systems to better address environmental issues. There is an umbrella of knowledge systems, and we need to use them all to create informed solutions.

One type of knowledge system that is underutilized is Indigenous knowledge systems (IKS); an interdisciplinary ideology that embraces knowledge pertaining to Indigenous communities. The generational knowledge is highly dynamic, as it uses traditional and long-standing problem-solving techniques, to address environmental conditions in the present. IKS frequently value a contextualized and holistic view of information, using observation, thought, and history, to draw conclusions. IKS are place-specific and vary depending on the Indigenous people native to the land. Indigenous knowledge keepers can contribute within western systems and across the globe to both share traditional knowledge, and lead conversations on climate change solutions.

Indigenous knowledge keepers are scientists without the lab coat, meaning their knowledge is as viable and relevant in addressing environmental issues, as scientists in the community. When we begin to open avenues for Indigenous knowledge keepers to share their knowledge and respect their knowledge as the expertise it is, then we will have access to more information about how to address the problem, and have a more holistic view of the problem. By co-creating solutions with Indigenous knowledge keepers solutions will be better informed, more representative of all those with relation to the land, and more holistic since they can also begin to address the root problem which created this circumstance for the oil spill to occur- our exploitation and mismanagement of the land. By addressing the root issue we will begin to also lessen our dependence on fossil fuels since this is a major aspect of exploitation and degradation of the land. This in turn will work towards the larger goal of achieving climate justice for all, since the burning of fossil fuels like coal, oil, and natural gas is what is driving climate change, but by equitably including and considering all with relation to an environment we can create representative solutions to reduce these emissions. Therefore, it is important to connect with indigenous non-profits and advocate for their inclusion in environmental decision-making to include their perspectives and expertise in climate reform conversations, such as addressing issues like the oil spill that recently occurred.

Internal Evaluation and Outline
What are Indigenous Knowledge Systems (IKS)?

- Interdisciplinary ideologies embrace knowledge pertaining to specific Indigenous communities. They are holistic, generational, and highly dynamic, using traditional and long-standing problem-solving techniques, to address environmental conditions in the present.

Why IKS is important for environmental solutions.
- They represent another way to address the environmental problems and by using them we will have access to more information and have a more holistic view of the roots of the environmental problem at hand

- By focusing on the roots of the issue long term solutions can be created (not just temporary band-aids to the problem) and in turn prevent the underlying problem from continuing or building back infrastructure and policy which created the circumstance for this event; prevents something like an oil spill from happening again in the future.

Indigenous knowledge: guide to framing

- By relying on IKS to create solutions we also can build equitable and just solutions that represent and include everyone

Trusted communicator:
- To communicate *with* those in positions of power (like nonprofits and local representatives), those horizontally in positions of power are trusted communicators

- This includes others in nonprofits or folks who are also representatives
- This also includes scientists since nonprofits use their research to advocate for research-informed policy and local representatives also rely on this information to decide on policy and create solutions

- For example, we know scientists are trusted communicators of information that inform solutions and policy based on the role of the CAOP

- Ex: Ca's Ocean protection council is a ca governmental organization created solely to generate and fund scientific research on the coast of California to create more effective problem solving and resource management solutions

- *Coastal and Marine Geospatial Data*. (2021). Ocean Protection Council; Ocean Protection Council.

- They have generated research that has influenced and continues to influence how California manages its coastal waters

Audience:

● Our audiences are decision-makers and those in positions of power to create and influence policy and solutions for the OC oil spill Value:

- Values of NGOs

- Found in a recent large global study of NGO's that resource management and protection of both the environment and communities are some of the most commonly shared values in mission statements
  - Study: Partelow, S., Winkler, K. J., & Thaler, G. M. (2020). Environmental non-governmental organizations and global environmental discourse. *PLOS ONE*, *15*(5), e0232945.
  - Finding: "PCA indicates that Environmental Management is the most commonly engaged discourse by ENGOs (loading positively on the first PC)"
- We found similar language being used in the mission statements of local nonprofits who work on environmental issues

- Engaged in the discourse around "environmental health and safety, and community health"

Indigenous knowledge: guide to framing

- Values of CA reps

- A review of the biography of OC city council members shows the use of similar language around valuing community health and safety, creating thriving environments for community members, and building community resiliency
- Because Local legislators also represent the values of community members we also found research on the values and feelings of CA residents (there is a lack of this research with a hyperspecific focus on OC residents so research on CA residents, in general, is used)

- The 2020 study by public policy institute of CA found that CA residents care a lot about climate change and the environment

- " A majority of Californians say it is very important (54%) that the state is a world leader in fighting climate change"
- "Most Californians (80%) view global warming as a very serious (56%) or somewhat serious"
- Baldassare, M., & Dykman, A. (2021). *Californians' views on climate change*. Public Policy Institute of California.
- Given these values, we have selected to use both the values of responsible management and protection to speak to these audiences since it's clear this is important based on discourse used in Biography's, mission statements, and representative's values to audience members

Metaphor:

● We chose to compare indigenous knowledge keepers to scientists given the relation of scientists and those who are decision makers

   ○ Nonprofits + government agencies depend on and respect scientists and their expertise to create solutions to some of our most pressing problem

   ○ We want to leverage this same respectability and trust given to scientists to indigenous knowledge keepers given that their information is also tried and tested since its a reflection and collection of generations of knowledge on the environment

● Umbrella of knowledge systems

- We chose to extend the metaphor of an umbrella to apply to the range of knowledge systems, with indigenous knowledge systems being one that is underutilized
- This was intentionally done because the metaphor of an umbrella bringing together things and creating unity because of how it can cover multiple people and things is well known
- By applying this metaphor to IKS we can show the way that IKS can work in unity with western knowledge systems, in order to create well informed solutions

Indigenous knowledge: guide to framing

Solution:

- A core aspect of our solution is that IKS's and the inclusion of Indigenous knowledge keepers should be advocated for by those in positions of power to be included in the solution making process
    - This is because of our main goal which is to create solutions that work towards climate justice for all
    - IKS's will bring this goal into actualization because of its holistic, localized, and intergenerational nature
- Research also shows that by western science has a lot to learn from what is already known by Indigenous knowledge keepers
    - For example, when there was a natural disaster in the Channel Islands, the indigenous population was able to move to safety because they were aware through intergenerational stories that when the Earth shook, it was dangerous and they needed to move to higher ground

    - Arnold, C. (2017, April 13). *Indigenous myths carry warning signals about natural disasters | Aeon Essays*. Aeon.

    - Similarly it was found in a study by the University of Michigan that through a creation myth geologic formations could be understood, but it wasn't until recently that western scientist were able to find out this same information through different means of research

    - McWilliams, R. (n.d.). *The Geology of North America as Illustrated by Native American Stories*. Department of Geology Miami University.

- Integrating Indigenous knowledge with other knowledge systems to create policy and solutions around resource management has already been identified as a important solution by the US forest system

They have recently begun integrating Indigenous knowledge in different regions to be able to better manage different forests given how much is known through IKS's about specific forests, their care of generations, and holistically how to care for them

The US forest system has also put together a toolkit on how to integrate IKS's into forest management policies so that it acts complimentary to western knowledge systems

Areas to avoid:
● Things that should be avoided when talking about and working with IKS's and indigenous communities in general

- Speaking about indigenous people in the past tense- this enforces that indigenous communities and people do not exist in current times which is a violent affirmation of settler colonialism
- Non compensation- by not compensating indigenous knowledge keepers for their consultation, advice, and information then knowledge is being extracted from them, and relationships become exploitative and again align with settler-colonial relations to reinforce colonialism

Indigenous knowledge: annotated bibliography

Arnold, C. (2017, April 13). *Indigenous myths carry warning signals about natural disasters | Aeon Essays*. Aeon. https://aeon.co/essays/indigenous-myths-carry-warning-signals-about-natural-disasters

This article discusses how indigenous "myths" can be effective tools in predicting natural disasters. It discusses the story of the Moken on the Andaman Islands, who knew about a tsunami that was coming, allowing them to reach safety, unlike a large portion of the non-native people. This story represented how Western science has a lot to learn from Indigenous Knowledge keepers, and how scientific "discoveries" have often already been "discovered" by the indigenous people of the land. This was useful in designing our solution, as it highlighted the importance of normalizing and highlighting indigenous knowledge within Western culture and education systems. Additionally, our solution intends to support climate justice for all people, which can only be done when using holistic and generational knowledge from Indigenous knowledge systems.

Baldassare, M., & Dykman, A. (2021). *Californians' views on climate change*. Public Policy Institute of California. https://www.ppic.org/publication/californians-views-on-climate-change/

This study reviewed the public opinion on climate-related issues, finding that 54% of Californian residents claim that the state is a "world leader in fighting climate change," and 80% view global warming as "very serious." Overall, Californians significantly care about the environment, which acted as an insight on how communication of policy-makers and the media can help build care for the environment within local communities. The perceived value of building community was seen to create a sense of resilience in the community, suggesting that our piece should appeal to the values of protection and responsible management. Moreover, the representative's mission statements and biographies aligned with these values.

Coastal and Marine Geospatial Data. (2021). Ocean Protection Council; Ocean Protection Council. https://www.opc.ca.gov/category/projectsbystrategicplan/science-based-decision-making/

The ocean protection council has generated research covering coastal and marine data collection, that has heavily influenced how California manages its coastal protection programs. The governmental organization uses this data to create more effective problems solving techniques and solutions. This source provided guidance on who the trusted communicators of our piece would be, such as scientists and people holding influential positions within our local community.

McWilliams, R. (n.d.). *The Geology of North America as Illustrated by Native American Stories*. Department of Geology Miami University.

The Geology of North America as Illustrated by Native American Stories was a source of indigenous stories and story-telling strategies, for example, it explained the creation of America in terms of a local tribe. This provided more evidence on the importance of including indigenous knowledge within general environmental communications, and another creative solution to propose in our own research.

Partelow, S., Winkler, K. J., & Thaler, G. M. (2020). Environmental non-governmental organizations and global environmental discourse. *PLOS ONE, 15*(5), e0232945. https://doi.org/10.1371/journal.pone.0232945

Indigenous knowledge: annotated bibliography

This source explained the influence of nongovernmental organizations when addressing environmental discourse. According to the study, this topic is one of the most commonly engaged within non-governmental organizations. The language used within their mission statements helped inform the values we used in our communications toolkit.

Vinyeta, K., & Lynn, K. (2013). Exploring the role of traditional ecological knowledge in climate change initiatives. *General Technical Report (GTR)*, 37. https://doi.org/ https://doi.org/10.2737/PNW-GTR-879

This article explains how traditional ecological knowledge, in terms of indigenous knowledge systems (IKS), can be used to address climate change and play a central role in Indigenous and Western climate change initiatives. It additionally covers the potential benefits and challenges of combining the knowledge systems. This source provided the fundamental basis in designing our solution, as it highlighted the importance of compensation, continued communication, and general advice in integrating IKS in all types of environmental initiatives. Moreover, it helped inform our analogy of "Indigenous knowledge keepers are scientists without the lab coats," as the source contributed to the longevity and scientific practices of IKS.